

AD-A285 251

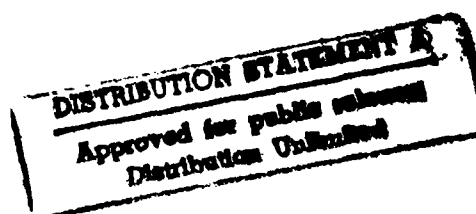


AIR UNIVERSITY



## Of Carrots and Sticks or *Air Power as a Nonproliferation Tool*

FRANKLIN R. WOLF, Major, USAF  
School of Advanced Airpower Studies



94-31674



**Of Carrots and Sticks**  
*or*  
***Air Power as a Nonproliferation Tool***

FRANKLIN R. WOLF, Major, USAF

THESIS PRESENTED TO THE FACULTY OF  
THE SCHOOL OF ADVANCED AIRPOWER STUDIES,  
MAXWELL AIR FORCE BASE, ALABAMA, FOR COMPLETION OF  
GRADUATION REQUIREMENTS, ACADEMIC YEAR 1992-93

Air University Press  
Maxwell Air Force Base, Alabama 36112-6428

DTIC QUALITY INSPECTED 2

July 1994

## Contents

<i>Chapter</i>		<i>Page</i>
	DISCLAIMER . . . . .	ii
	ABSTRACT . . . . .	v
	ABOUT THE AUTHOR . . . . .	vii
1	Introduction . . . . .	1
	Notes . . . . .	4
2	The Story of Nuclear Nonproliferation, 1949-1991 . . . . .	5
	Notes . . . . .	14
3	Renewal of a Regime, 1991-1993 . . . . .	17
	Notes . . . . .	25
4	The Role of Force in Nonproliferation, History and Theory . . . . .	27
	Notes . . . . .	38
5	Conclusion . . . . .	41
	Notes . . . . .	50
	BIBLIOGRAPHY . . . . .	51

Accession For	
NTIS GRA&I	<input checked="" type="checkbox"/>
DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By	
Distribution/	
Availability Codes	
Dist	Avail and/or Special
A-1	

## ***Abstract***

The proliferation of nuclear weapons has become one of the principal threats to international peace and security. Postwar revelations from Iraq demonstrate how close a determined nation can come to covertly developing nuclear weapons without detection. In the past two years the issue of nonproliferation has increased in importance and the regime is becoming more intrusive. On the other hand, a number of nations hostile to the international order are attempting to develop or otherwise obtain nuclear weapons. These states include North Korea, Iran, and Iraq. This paper argues that the use or threat of force must be incorporated into the nonproliferation regime. When properly integrated into nonproliferation strategy, force offers positive effects in terms of deterrence, compellence, and defense. Thus, the paper calls for the institutionalization of force options into the nonproliferation tool kit, ideally as part of chapter 7 enforcement actions under the authority of the UN Security Council.

### ***About the Author***

Maj Franklin R. Wolf (BGS, University of Kansas; MA, Central Michigan University; MA, Creighton University) is a missile operations officer. A recent graduate of the second class of the School of Advanced Airpower Studies, he is assigned to the Plans and Operations Deputy Chief of Staff(DCS), at Headquarters USAF, Washington, D.C. Also a graduate of Air Command and Staff College, Major Wolf has served as a Minuteman III missile launch officer and evaluator at Minot Air Force Base(AFB), North Dakota; a ground launched cruise missile (GLCM) launch officer and senior evaluator at Comiso Air Station, Sicily; and as a plans and policy staff officer and member of CINCSAC's Command Action Group at Headquarters Strategic Air Command, Offutt AFB, Nebraska.

## Chapter 1

### Introduction

In describing the changing strategic landscape, Gen Colin Powell identified the monumental changes occurring in the former Soviet Union and the proliferation of weapons of mass destruction as its two primary characteristics.<sup>1</sup> Likewise, former President George Bush suggested that, of all our arms control objectives, "none is more urgent than stopping the proliferation of nuclear, chemical, and biological weapons."<sup>2</sup> On this issue at least, there is broad agreement between the past and present administrations, as President Bill Clinton identified bolstering Russia and stopping the proliferation of nuclear weapons as his first two foreign policy priorities.<sup>3</sup> Why has this common call to halt nuclear proliferation become so important? It is, after all, not a new problem. Is the rediscovery of proliferation merely a bureaucratic search for new roles and missions, with the cold war over and Iraq prostrate; or have we in the aftermath of Desert Storm seen something we don't like, something that requires greater attention than we gave in the past? It is not difficult to argue that Iraq's close brush with becoming a nuclear power sent a jolt through the international system, and that nonproliferation efforts are being energized as a result. While several other factors contribute to nonproliferation's newfound popularity among policymakers, certainly our experience with Iraq is the catalyst to much of what has transpired over the past two years.

As we attempt to make sense of where nuclear nonproliferation is, much less where it may be going, boundaries must be established and a course set. First, while the proliferation of all weapons of mass destruction—nuclear, biological, and chemical weapons—and their means of delivery, especially ballistic missiles, are sources of international concern, this paper will focus on the spread of nuclear weapons. As Lewis Dunn put it,

...the discovery after the 1991 Gulf War that Iraq was very close to acquiring nuclear weapons has, quite understandably, brought nuclear proliferation closer to center stage. Far more than chemical weapons or ballistic missiles, nuclear weapons are changing the politics, strategies and consequences of regional confrontation and conflict. The danger of nuclear use by an emerging nuclear power will increasingly shape the prospects, coalition-building and posture of outside military involvement.<sup>4</sup>

Additionally, we will not concern ourselves much with the various motives often attributed to those pursuing a nuclear weapons capability. These include, as Kenneth Waltz tells us, an attempt by a great power to counter the nuclear weapons possessed by another great power; doubts by a country that

its nuclear ally would really extend deterrence by retaliating on its behalf; a desire for security by a nation without nuclear allies, both as a counter to conventional inferiority and as an affordable alternative to an expensive conventional arms race; for offensive purposes; or to increase one's international standing and prestige.<sup>5</sup> While understanding why a nation seeks nuclear weapons is undoubtedly important, we will keep our attention on the tangible manifestations of intangible motives. Any attempts by us to derive the intentions of others are bound to be "complicated, and beset with paradoxes."<sup>6</sup> We will instead abide by the well-worn but still valid adage that intentions change more quickly than do capabilities, and thus prudence demands we fix our focus on the "what" rather than the "why" of nuclear proliferation.

Finally, our inquiry will be primarily limited to what is often referred to as the *demand-side* of the nonproliferation equation. As Jean-Francois Rioux and others have explained, proliferation measures generally fall into two categories, oriented at both supply and demand. Supply-side policies concentrate on "embargoes and export-control measures applied by supplier states in order to place obstacles in the path of certain states' nuclear militarization."<sup>7</sup> Alternatively, demand-side tools attempt "to convince non-nuclear powers that it is in their interest not to acquire nuclear weapons."<sup>8</sup> As a general rule, *demand-side measures are the most promising cure, but are the most difficult to implement, while supply-side policies are usually temporary measures that buy time for a final solution.* Further, while the supply-side strategy is by definition oriented toward denial measures, demand strategies include both incentives and disincentives, as illustrated in table 1:

Table 1

STRATEGY	INCENTIVES	DISINCENTIVES
Supply-side		<ul style="list-style-type: none"> <li>-Embargoes</li> <li>-Export controls</li> <li>-Treaty obligations not to export</li> </ul>
Demand-side	<ul style="list-style-type: none"> <li>-Security assistance &amp; guarantees</li> <li>-Confidence-building &amp; conflict-resolution measures</li> <li>-Treaty obligation to work toward disarming</li> </ul>	<ul style="list-style-type: none"> <li>-Deterrence through threats of force</li> <li>-Use of military means to enforce nonproliferation</li> </ul>

While the supply-side approach is certainly valuable and is in many cases the preferred strategy, the primary focus of this paper is on the lower right-hand quadrant, the demand-side disincentives to nuclear proliferation—

what Steve Fetter refers to as "the dark side of nonproliferation policy."<sup>9</sup> What is the potential contribution of demand-side disincentives to current nonproliferation efforts? Under what conditions are these measures appropriate? And where this approach is preferred, how should it be constituted and organized? The purpose of this paper is to answer these questions, but all treatments of proliferation rest on certain assumptions and this study is certainly no different. First, this paper asserts that more is *not* better; it is actually worse. The study assumes that the more countries possessing nuclear weapons, the more likely their use, whether in anger or in error.<sup>10</sup> To suggest that the uneasy stability that marked the cold war relationship between the superpowers, which was indeed dominated by their overwhelming nuclear capability, would continue on in a fundamentally different world populated by multiple nuclear powers is wrong. Nuclear capability was only one variable, albeit a very important one, of the international system that existed from 1945 to approximately 1991. While the degree of circumspection nuclear weapons may induce in decision makers is indeed theoretically intriguing, as a practical matter few are willing to allow proliferation to run its course, hopeful that the willingness to possess nuclear weapons is always accompanied by an unwillingness to use them. Indeed, "there are simply too many ways in which nuclear weapons, once they have come into existence, can still come into use, despite the plans and best intentions of each side. And, above all, there is too much destruction that such weapons can inflict."<sup>11</sup>

Secondly, this paper ruefully recognizes the world we live in. Namely, it is exceedingly difficult to prevent a determined, patient, resourceful, and relatively wealthy country from developing nuclear weapons if it remains fully committed to that task. As a result, while we should continue to strive for an ultimate objective of stopping nuclear proliferation in its tracks, we must at the same time not ignore the wisdom of Joseph Nye's somewhat less grand reminder that "buying time...is a feasible policy objective."<sup>12</sup> It does indeed matter "how many horses are out of the barn and the speed at which they run."<sup>13</sup> As mentioned above, this recognition of the importance of time is in large part the very foundation of supply-side measures, which are "usually seen as temporary measures that buy time while better solutions to the proliferation quandary are sought."<sup>14</sup> Thus we will not be too quick to discard a potential solution on the grounds that it fails to address root causes. At times we must accept a temporary but impermanent fix to allow a later opportunity to find a final solution, if indeed there is such a thing as an ultimate nonproliferation answer. Lastly, this study believes that an awareness of an issue's history is worthwhile. Attempts to develop nuclear weapons in the face of restraining counterefforts did not begin with Iraq. We will proceed assuming that knowing the past of nuclear nonproliferation will help us understand its present, and perhaps even anticipate the future.



### Notes

1. Colin L. Powell, *The National Military Strategy 1992*, January 1992, 1.
2. George H. W. Bush, *National Security Strategy of the United States*, August 1991, 15.
3. "The Clinton Doctrines," *U.S. News & World Report*, 11 January 1993, 16-17.
4. Lewis A. Dunn, Containing Nuclear Proliferation, *Adelphi Papers* 263, Winter 1991, 3-4.
5. Kenneth N. Waltz, "The Spread of Nuclear Weapons: More May Be Better," *Adelphi Papers* 171, Autumn 1981, 7-7.
6. George H. Quester, *Nuclear Pakistan and Nuclear India: Stable Deterrent or Proliferation Challenge?* (Strategic Studies Institute, US Army War College), 25 November 1992, 2.
7. Jean-Francois Rioux, "Supply-Side Controls on Nuclear Proliferation," *Orbis*, Spring 1992, 164.
8. Ibid., 163.
9. Steve Fetter, "Ballistic Missiles and Weapons of Mass Destruction," *International Security*, Summer 1991, 36.
10. For a contrary view, see Waltz, "The Spread of Nuclear Weapons."
11. Quester, 19.
12. Joseph S. Nye, Jr., "New Approaches to Nuclear Proliferation Policy," *Science*, 29 May 1992, 1,294.
13. Ibid., 1,293.
14. Rioux, 164.

## **Chapter 2**

# **The Story of Nuclear Nonproliferation 1949-1991**

Before discussing the current state of the proliferation problem it is instructive to start at the beginning. Nuclear proliferation first became an issue in September 1949, when the Soviet Union exploded its first nuclear device, years ahead of American estimates. In 1953, the year after Great Britain became the third nuclear nation, President Dwight D. Eisenhower appeared before the United Nations to urge the peaceful use of atomic energy, primarily for its promise as an energy source. As a consequence, the Atoms for Peace conferences in Geneva followed. It was in Geneva that the genie was let a little further out of the bottle, as "the United States and other countries possessing nuclear technology disclosed previously classified nuclear technology associated with the production of materials for nuclear weapons, so that it might be applied for civilian research and the generation of civilian energy."<sup>1</sup>

The United Nations took the next step to manage nuclear development when it created the International Atomic Energy Agency (IAEA) in 1956. Operating under the auspices of the UN, the IAEA is headquartered in Vienna and has two historically contradictory functions "to safeguard as well as promote peaceful uses of nuclear energy."<sup>2</sup> By 1966, when the US Senate passed a resolution urging negotiations for a treaty that would prevent the spread of nuclear weapons, the nuclear club stood at five, with France attaining a nuclear capability in 1960 and the People's Republic of China (PRC) four years later. The Eighteen Nation Disarmament Committee (ENDC) carried out negotiations for such a treaty and on 1 July 1968 the Treaty on the Nonproliferation of Nuclear Weapons (usually referred to as the Nuclear Nonproliferation Treaty, or NPT) was signed in London, Moscow, and Washington. The treaty went into effect on 5 March 1970, by which time 47 nations were members.

The NPT created two classes of nations the five nuclear "haves" the US, USSR, Great Britain, France, PR and the remaining "have-nots," states not having a nuclear weapons capability and voluntarily pledging not to obtain one. The treaty also levies commitments on both classes, primarily through Articles IV and VI. Article VI, often referred to as the "risk reduction article," requires the "haves" to take steps toward disarmament. For their part, the "have-nots" obligate themselves in Article IV, the "compensation article," not to obtain nuclear weapons or technology. The compensation for this pledge is

in the form of assistance in developing the peaceful uses of nuclear technology. The responsibility for administering the treaty, and particularly the two sides of Article IV—promoting the peaceful use of nuclear energy while at the same time preventing any diversion for weapons development—is performed through IAEA-administered inspections. Part of the motivation for nonnuclear states to accept this arrangement has been described by Joseph Nye as the “logic of inequality,” whereby smaller states recognize that by agreeing not to pursue nuclear weapons, their own security will be enhanced. As Nye put it, “they believe their security will be diminished if more states—particularly their regional rivals—obtain nuclear weapons” and “for the present, most states are likely to accept some ordered inequality in weaponry because anarchic equality appears more dangerous.”<sup>3</sup>

In a sense, the treaty may be viewed as the beginning of an overall pattern of *action* (by states attempting to obtain nuclear weapons) and *reaction* (by the UN and a growing number of NPT member-states). Unfortunately, the NPT was only an opening salvo, for it did little more to solve the problem of proliferation than the Treaty of Versailles did to settle the boundaries of post-World War I Europe. The challenges to the treaty came primarily from two directions. The first was from outside the NPT, as several nations chose, for varying reasons, not to sign the treaty. Most conspicuous by their absence were nuclear powers four and five, France and the PRC. Although both pledged not to assist in proliferation activities, they refused to sign the treaty, thus creating at least the impression they were somewhat less than fully committed to the cause. Perhaps more worrisome, several relatively advanced nations remained outside the treaty, all of whom were either regional rivals or were in areas of the world often marked by tension and violence. These nations included Argentina, Brazil, India, Israel, North and South Korea, Pakistan, and South Africa. By remaining outside the framework of the NPT, these nations traded some censure for nuclear flexibility. In every case, the decision eventually made was in favor of attempting to develop a nuclear weapons capability, and the effort expended toward that end has been considerable. A selective survey of part of the proliferation landscape follows.

## South Asia

*India*—As evidenced by being the only nation to openly explode a nuclear device after the creation of the NPT, India has long been the most hostile state regarding the nonproliferation regime. India has criticized the NPT as a discriminatory device meant to perpetuate the have-have not status quo, and has repeatedly cited the lack of superpower progress toward disarmament, as required by Article VI, as a reason not to join the treaty. Accordingly, India has refused to accede to NPT provisions and has insisted on the right to pursue her security concerns as she sees fit. Motivated by a combination of a regional rivalry with Pakistan and the desire to contest Chinese influence on

a broader scale, India's interest in developing a nuclear program reportedly dates back to the 1960s, sometime after her "humiliating" military defeat by China in 1962.<sup>4</sup> The detonation in May of 1974 represents India's only nuclear explosion to date. In 1981, the United States reportedly received intelligence reports that India was preparing to conduct another test. Threats and counterthreats supposedly ensued, leading to the withholding of previously contracted nuclear fuel shipments and economic sanctions in the form of curtailing Export-Import Bank financing. A mid-1982 compromise included an implicit agreement that India conduct no more tests.<sup>5</sup> As a result, testing has not been resumed, but "India continues to enlarge its nuclear explosives capability with seeming impunity."<sup>6</sup> Much speculation has surrounded the extent of India's arsenal, but the consensus of many experts is that may be as large as 25 to 75 nuclear weapons.<sup>7</sup> The state of assembly has likewise been debated. The prevailing view is that, for safety reasons as well as the political benefits of deniability, the bombs are probably kept in a state of slight disassembly—what is often referred to as "bombs in the basement," or "simply a few turns of the screwdriver away."<sup>8</sup> In sum, although it continues to reject the label, India must be considered the world's sixth nuclear weapons state.

*Pakistan*—Not willing to concede a regional nuclear monopoly to her rival India, Pakistan's nuclear ambitions date back to at least 1972 and construction on the necessary reprocessing and enrichment facilities began in 1975.<sup>9</sup> Pakistan is said to have received uranium enrichment capability and nuclear weapons design assistance from China,<sup>10</sup> and was also the recipient of large amounts of economic assistance from the United States during the 1980s, in apparent return for support provided the US during the Soviet involvement in neighboring Afghanistan. Consequently, despite erratic attempts to enforce export controls on Pakistan, and despite her continued assertions to the contrary, nonproliferation experts credit Pakistan with attaining a nuclear capability in the late 1980s and with having an arsenal in the neighborhood of a half dozen weapons.<sup>11</sup> There is also some evidence that Pakistan may have actually "crossed the nuclear threshold" during the Kashmir crisis of April 1990. The Pakistanis may have assembled some previously separated components into bombs to be carried on modified F-16s.<sup>12</sup> Since it was unable to satisfy the requirements of the Pressler amendment that Pakistan "does not possess a nuclear explosive device," the Bush administration was forced to withdraw its aid request, and US economic assistance to Pakistan was cut off in October 1990.<sup>13</sup>

Apparently, the potentially serious consequences of a regional nuclear arms race were almost realized on more than one occasion. The near miss during the 1990 Kashmir crisis has already been mentioned. Additionally, there have also been rumors and reports that the Indian government contemplated preemptive air strikes on Pakistani nuclear facilities during the 1980s, possibly as a result of Israel's advice to attack "before it is too late."<sup>14</sup> While it is impossible to establish the veracity of such charges, and by now it is surely too late to stop Pakistan, the possibility of such a scenario being replayed elsewhere cannot be dismissed.

## Korea

*North Korea*—While the genesis of a decision to pursue nuclear weapons is usually unclear, the origin of North Korea's interest in nuclear power is easily traced—President Eisenhower's threat in 1953 to use nuclear weapons to end the Korean conflict.<sup>15</sup> As a result of Eisenhower's threat, in 1955 North Korea began participating in Eastern European nuclear research programs, while in 1956 it concluded an agreement with the Soviet Union to train North Korean scientists in nuclear physics. Starting in 1959 the People's Republic of China also began to aid North Korea as well. With Soviet and Chinese assistance, the Koreans subsequently discovered the presence of four million tons of minable uranium in their homeland and began operating a nuclear reactor in 1967. Perhaps buoyed by India's success, in the mid-1970s there was "a dramatic increase in North Korea's interest in nuclear development and, apparently, the decision to actively pursue an indigenous nuclear weapons programme."<sup>16</sup> During a 1974 visit, Chou En Lai apparently gave Kim Il-Sung Chinese support for a North Korean weapons program and construction soon began on suitable facilities. Additionally, in 1980 the North Koreans started building a weapons-capable reactor, which was subsequently discovered by US intelligence in 1984, when it was approximately 50 percent complete. The United States protested to the USSR and, under Soviet pressure, North Korea signed the NPT in 1985. Citing the continued presence of US tactical nuclear weapons in South Korea, however, the North dug its heels on compliance by failing to sign a full disclosure and safeguards agreement with the IAEA within the required 18 months following its signing of the treaty. Some experts contend that the reason for North Korea's delay was to "complete its reprocessing facility and/or produce two or three nuclear bombs."<sup>17</sup>

The question of when North Korea may actually have a nuclear weapons capability is an important one and there is some disagreement. The range is usually in the neighborhood of "mere months" to the more common estimate of two to five years.<sup>18</sup> Certainly North Korea seems to desire nuclear weapons. Commenting on the large reprocessing facility at Yongbyon, about 60 miles north of the capital Pyongyang, John Deutch contends that "North Korea's characterization of this sizable facility as a 'radiochemistry laboratory' is simply unbelievable. It has been publicly reported that French SPOT satellite photographs have confirmed the presence of these facilities, as well as nearby craters that appear to be the result of high explosives testing."<sup>19</sup> Despite continual protestations of innocence, it remains certain that North Korea has been steadily developing a nuclear weapons capability, both before and after signing the NPT in 1985.

*South Korea*—As the weapons developments of India and Pakistan are interrelated, so are the policies of the two Koreas. While the analogy to the situation in Southwest Asia is apt to a point, it does not, however, account for two important differences. First, South Korea has enjoyed a much closer security relationship to the United States than has Pakistan, and one which

has been unbroken since 25 June 1950. The second characteristic of our South Korean relationship derives from the first. Namely, the United States has much greater leverage with South Korea than it does with Pakistan. In other words, a mutually advantageous situation has developed where South Korea has been able to count on our extended deterrence and we in turn have been relatively able to dictate the terms of the relationship. One sign of our leverage is found by looking at the brief history of South Korea's interest in nuclear affairs. As a result of the North Korean quest for a nuclear capability and a concern that warming US relations with China meant less American concern for her, South Korea in the early 1970s appeared to launch a nuclear weapons development program, and by early 1976 had contracted to buy a commercial-scale reprocessing plant from France.<sup>20</sup> At this point the Ford administration reacted far more forcefully than has been the international norm and "implied it might withdraw the US security umbrella" and leave South Korea to its own fate. Before the end of the year South Korea abandoned its nuclear efforts.<sup>21</sup>

## **The Middle East**

*Israel*—It is perhaps surprising that in the most volatile region of the world all the major states save one have signed the Nonproliferation Treaty. Egypt, Iran, Iraq, Jordan, Kuwait, Saudi Arabia, Syria, Bahrain, Yemen, and Tunisia are all parties to the treaty. Israel, however, is by all accounts, other than her own, one of the "haves" and must be considered, along with India and Pakistan, a de facto nuclear state. Estimates as to when Israel gained the ability to manufacture nuclear weapons are surprisingly early, sometime between 1968 and 1973—about the same time as India.<sup>22</sup> If true, this would help explain why Israel refused to sign the NPT between 1968 and 1970 and still today remains a nonsignatory. What separates Israel from India is that the latter, by conducting its nuclear test in 1974, lost the cloak of ambiguity enjoyed by nations such as Pakistan, and apparently Israel. Although there has been no confirmed evidence of an Israeli nuclear test, there is much suspicion that a mysterious signal detected by a US nuclear-test detection satellite over the South Atlantic on 22 September 1979 was indeed a low yield Israeli nuclear test.<sup>23</sup> Israel, characterized by Leonard Spector as the "prototype of ambiguous proliferation," denied the allegation.

The role of the United States in the development of Israel's nuclear capability is, as one might suspect, complicated. As a result of a 1957 agreement with France, Israel secretly opened a nuclear reactor at Dimona. In the early 1960s the US aggressively intervened to prevent Israel from creating the capability to produce weapons-grade materials at Dimona and insisted that the facility be inspected annually by the US. In 1968 the CIA informed President Lyndon B. Johnson that Israel had apparently diverted enough highly enriched uranium from a privately run reactor in the US to

manufacture six nuclear weapons and was indeed making such weapons. Also in 1968 Israel refused to sign the NPT, which would have required that the reactor at Dimona would be subject to IAEA safeguard inspections, and also requested F-4s from the US equipped with special wiring for carrying nuclear bombs. The sole reaction from the administration to these developments was to approve the transfer of the F-4s, minus the wiring. Furthermore, in 1969 the United States stopped inspecting the Dimona facility as well as increasing military and economic aid; perhaps as a result of the 1967 Arab-Israeli war. Since then the only nuclear restriction placed on Israel occurred in 1974. Congress linked future civil nuclear transfers to Egypt and Israel with international inspections of all nuclear facilities. Egypt agreed, Israel refused. This relatively insignificant cutoff of civil nuclear transfers has been the only apparent penalty Israel has incurred for its pursuit of nuclear weapons. There appears to be an implicit understanding between the international community and Israel that nothing will be said as long as Israel refrains from conducting a nuclear test or announcing the possession of nuclear weapons.<sup>24</sup>

It also seems likely Israel may have an arsenal far larger and much more advanced than previously supposed. Based partially on revelations made by a nuclear technician who worked at Dimona from 1977 to 1985, there is some evidence that Israel has somewhere between 50 and 200 manufactured nuclear weapons. Furthermore, the yield of Israel's weapons may be as high as "perhaps one hundred kilotons, the size of some US strategic warheads."<sup>25</sup>

### **The Threat from Within**

It was no surprise that non-NPT members first threatened the treaty's nonproliferation policies. The possibility that they wanted to pursue the development of nuclear weapons was always there. What was a completely unexpected development, however, was the threat to nonproliferation from within—from nations which had signed, ratified, and were supposedly adhering to the obligations of the NPT. Until recently, there was a widespread presumption that an NPT member would not default on its treaty obligations. There is, however, no region on earth less in need of nuclear power as an alternative energy source than the Middle East, and yet a surprising number of NPT states in the Middle East initiated nuclear energy programs in the 1970s and 1980s, including both Iran and Iraq.

*Iran*—Despite belonging to the NPT, Iran has been expanding its nuclear program since the Ayatollah Khomeini took power in 1979. Since 1987 it has become increasingly apparent that Iran has been actively pursuing a nuclear weapons capability and has been obtaining the necessary hardware from Western Europe, as well as technical assistance from Argentina, Pakistan, and South Africa.<sup>26</sup> In something of an irony, it is also probable that Iran "has learned a great deal from Iraq about how to decentralize its advanced weapons programs and to set up a clandestine procurement system."<sup>27</sup> According to recent estimates, it appears that Iran's weapons program is still

in its infancy and it will be approximately a decade before it can assemble bombs.

*Iraq*—Certainly there is no other state in the region about which we know more on nuclear matters than Iraq. In 1990, however, the director of safeguards for the IAEA referred to Iraqi nuclear compliance as “exemplary” and asserted that Iraqi officials “have made every effort to demonstrate that Iraq is a solid citizen” in nuclear matters.”<sup>28</sup> How could the IAEA have been so wrong? Perhaps the biggest factor was that Iraq was one of the original signatories to the NPT, and was thus presumed innocent of wrongdoing. Indeed, the extent of Iraq’s nuclear program came as quite a shock to most proliferation experts, who generally assumed that Iraq’s nuclear activities were dormant between the Israeli destruction of the Osirac reactor in June 1981 until the latter stages of the 1980–1988 war with Iran. In the words of one expert, the international community “wildly underestimated the scope and magnitude of the Iraqi effort. US and UN on-site inspection teams have since learned that Iraq had a massive covert program that encompassed every aspect of nuclear weapons development—from mining uranium ore, through enrichment by electromagnetic separation, to weapons design. The Iraqi program involved more than 10,000 qualified technical people who remain in place as a competent cadre.”<sup>29</sup> Further, it now appears that Iraq revived its nuclear weapons program in 1982, soon after the bombing at Osirac and that covert attempts to gain western technology were made throughout the 1980s. These efforts, all in the face of export controls and NPT obligations, were alarmingly successful. We now know, for instance, that “Iraq had conducted tests aimed at arming a ballistic missile with a nuclear warhead.”<sup>30</sup> Additionally, in perhaps the most disturbing revelation following the war, it was determined that Iraq was only 12–18 months away from having nuclear weapons at the outbreak of Desert Storm in January 1991.<sup>31</sup>

### **Three Themes**

At this point it is fair to ask “What went wrong?” Why did the reality of 1991 differ so badly from the original promise of the NPT? Enjoying the benefits of hindsight, we can identify three particular trends or themes that combined to make a difficult proposition impossible—the increasing use of ambiguity by those seeking to develop nuclear weapons, the sublimation of proliferation concerns to other foreign policy objectives by the defenders of the nuclear status quo, and serious structural weaknesses in the inspection arm of the nonproliferation regime, the IAEA.

### **The Ascendancy of Ambiguity**

From the first atomic explosion at Alamogordo on 16 July 1945 through India’s one and only nuclear test 29 years later, the most fundamental



requirement for entry into the nuclear club was a successful detonation. According to most weapons experts, however, the combination of data from past tests and current computer modeling techniques means that test explosions are no longer required for producing nuclear weapons. It is not difficult to imagine the potential benefits of this technical breakthrough, or the roadblocks to NPT enforcement. Evidence is harder to obtain, motives more difficult to assess, and repercussions less likely to be felt. States are now able to develop nuclear weapons without enduring the political fallout testing invites. The plausible deniability that computer modeling confers on would-be proliferators has become a thorn in the side of the nonproliferation regime. India's nuclear explosion almost 20 years ago remains the last confirmed test by a new nuclear power, and yet Israel, South Africa and Pakistan have all attained a nuclear weapons capability since then. George Quester generalized this phenomenon into two nuclear development models—the Indian Model and the Israeli Model.<sup>32</sup> If one remembers that India's openness cost her negative publicity and economic sanctions while Israel's silence has cost her very little, it is not surprising that Pakistan and others have adopted the Israeli approach.

At first glance, it would appear that this silent pursuit of nuclear weapons was confined to non-NPT states, since Pakistan, Israel and South Africa all developed their capabilities outside the treaty. Iraq, however, illustrates that belonging to the treaty, allowing the inspection of civilian nuclear facilities, and passing IAEA scrutiny are no proof of a pacific intent. As described above, the Iraqis simultaneously developed a massive covert nuclear weapons program at undeclared, and thus secret, locations. In other words, they almost succeeded in developing a "clandestine nuclear weapons program behind the fig leaf of nominal adherence to their nonproliferation obligations."<sup>33</sup> But for Saddam's miscalculation in 1990 and the subsequent Gulf War, Iraq would now be another ambiguous, and successful, proliferator.

### **A Lack of Will**

Yet another reason for the slow but steady spread of nuclear weapons between the signing of the NPT and Desert Storm has been the tendency by many policymakers to consider nonproliferation important, but not as important as many other things. Not surprisingly, our highest priority from the end of World War II until roughly 1990 was to check Soviet influence throughout the world. For example, our aid to Pakistan during the 1980s, despite repeated indications that it was developing a nuclear weapons capability, must be understood in a cold war context. We did not want Pakistan to have nuclear weapons; but stopping the Soviets in Afghanistan was a higher priority. Likewise, our blind eye toward Israel, and perhaps South Africa as well, was primarily a result of regional policies that related to our global preoccupation with the Soviets. Part of a policymaker's job is to

make priorities, and for most of the postwar period nonproliferation suffered in comparison to more pressing demands.

Less understandable, but equally damaging to the cause of nonproliferation, there was an inherent tension between the economic and political demands of the free market, versus the obligation incurred in Articles I and III of the NPT. The articles stipulated that nuclear states must refrain from selling nuclear technologies to those who would use them for weaponization. Unfortunately, despite the effort expended on supply-side disincentives throughout the 1970s and 1980s, export controls were loosely enforced and proved disappointingly porous. While such controls may slow the pace of proliferation, they cannot prevent its ultimate progress. In the harsh words of Paul Leventhal, president of the Nuclear Control Institute,

bluntly stated, current U.S. practice is to abstain from enforcing nuclear export controls whenever competing interests are deemed to take precedence—which is almost always. . . . Competing interests explain the failure of the United States to respond effectively to the nuclear weapons programs of Israel, South Africa, India, Pakistan, and Iraq. . . . In each instance, a case was made as to why immediate, specific interests had to take precedence over longer-term, nuclear proliferation concerns. History will judge. . . .<sup>34</sup>

### **The IAEA—Too Little, Almost Too Late**

Finally, nonproliferation has also been hampered by the almost fatally flawed inspection regime of the IAEA. Article IV of the NPT, which states that the IAEA will assist a state in developing nuclear energy in exchange for a pledge not to seek weapons, has at times been abused beyond recognition. One illustration is that, despite mounting evidence that North Korea was pursuing more than a civil nuclear capability, the IAEA nonetheless continued to assist North Korea with its uranium mining program.<sup>35</sup> For another example of the IAEA's tenuous grasp on what was going on around it, recall the claim quoted above by the IAEA director of safeguards that Iraqi nuclear compliance had been exemplary in 1990. The fundamental problem appears to be an oversight program that is far too narrow. More specifically, the limited scope of the IAEA safeguards system is one of the central obstacles to detecting attempts at cheating on the treaty.<sup>36</sup> Although one of the primary missions of the agency is to ensure that civilian nuclear fuel is not diverted to military use, allowing member-states "declare" their nuclear facilities makes acting on suspicions difficult. Despite the fact that the IAEA has always had the authority to make challenge inspections, this ability was never exercised before Desert Storm. The presumed truthfulness of a host country, coupled with an excessive concern with diplomatic niceties, produced a sterile inspection system that amounted to little more than an administrative check of civilian nuclear power records.<sup>37</sup> As Paul Deutch put it in the Fall 1992 edition of *Foreign Affairs*, "the mission and culture of the IAEA has been to focus narrowly on material accountability in declared

facilities without regard to other activity" and has thus become well acquainted with civilian nuclear power, but comparatively ignorant about nuclear weapons programs.<sup>38</sup> The almost surreal quality of this "system" is again illustrated by the Iraqi example, where inspectors confined themselves to checking only the declared facilities, despite "the obviously high level of activity in the buildings surrounding those facilities."<sup>39</sup>

Another long-standing weakness of the undermanned and too-trusting IAEA is that it has not had its own intelligence capability. Further, as intelligence sources and capabilities are among the most closely guarded of state secrets, the IAEA has generally not had access to external intelligence information, and thus is not able to sufficiently monitor the nuclear activities of member-states.<sup>40</sup> Finally, the agency is underfunded to do anything more than audit declared facilities, and its annual budget of \$70 million "would have to be increased several fold" if more aggressive inspections were to be conducted.<sup>41</sup> All in all, the combination of a mandate to assist in peaceful nuclear development, a too narrow inspection focus, a relative ignorance of nuclear weapons programs, a lack of intelligence capabilities, and insufficient budgets means that the IAEA has had neither the authority, the will, the data, nor the resources required to prevent unfaithful member-states from, to borrow Albert Wohlstetter's memorable phrase, "spreading the bomb without quite breaking the rules."<sup>42</sup>

#### Notes

1. Paul A. Leventhal, "Plugging the Leaks in Nuclear Export Controls: Why Bother?" *Orbis*, Spring 1992, 167.
2. Ibid.
3. Joseph S. Nye, Jr., "The Logic of Inequality," *Foreign Policy*, Summer 1985, 126, 130.
4. Brahma Chellaney, "South Asia's Passage to Nuclear Power," *International Security*, Summer 1991, 48-50.
5. Leonard S. Spector, "Proliferation: Silent Spread," *Foreign Policy*, Spring 1985, 61-62.
6. Ibid., 62.
7. George H. Quester, Nuclear Pakistan and Nuclear India: Stable Deterrent or Proliferation Challenge? (Strategic Studies Institute, US Army War College), 25 November 1992, 8.
8. Ibid.
9. Spector, 64.
10. Ibid., 56.
11. Quester, 8; and David A. Fulghum, "Advanced Arms Spread Defies Remote Detection," *Aviation Week & Space Technology*, 9 November 1992, 22.
12. Mitchell Reiss, "The United States and Pakistan's Nuclear Programme," *Royal United Services Journal*, Summer 1991, 47; and Fulghum, 21.
13. Ibid., 47-48.
14. Quester, 12-15.
15. Joseph S. Bermudez, "North Korea's Nuclear Programme," *Jane's Intelligence Review*, September 1991, 404-05.
16. Ibid., 406.
17. Ibid., 409.
18. *Jane's Defence Weekly*, 7 December 1991, 1, 106.
19. John M. Deutch, "The New Nuclear Threat," *Foreign Affairs*, Fall 1992, 131.

20. Spector, 70.
21. Ibid.
22. Ibid., 53.
23. Leonard S. Spector, "Nuclear Proliferation in the Middle East," *Orbis*, Spring 1992, 194.
24. Spector, "Silent Spread, 57-59.
25. Spector, "Nuclear Proliferation," 193.
26. Ibid., 186-88.
27. Fulgham, 21.
28. Leventhal, 167.
29. Deutch, 126.
30. Spector, "Nuclear Proliferation," 183.
31. Barbara Starr, *Jane's Defence Weekly*, 23 November 1993, 988.
32. George H. Quester, "Some Pakistani Problems and a Nuclear Non-Solution," *Journal of Strategic Studies*, December 1985, 102-04.
33. Avner Cohen and Marvin Miller, "How to Think About and Implement Nuclear Arms Control in the Middle East," *The Washington Quarterly*, Spring 1993, 102.
34. Leventhal, 169.
35. Andrew Mack, "North Korea and the Bomb," *Foreign Policy*, Summer 1991, 88.
36. John Simpson and Darryl Howlett, "Nuclear Nonproliferation: The Way Forward," *Survival*, November/December 1991, 483-84.
37. Jed C. Snyder, "The Non-Proliferation Regime: Managing the Impending Crisis," *Journal of Strategic Studies*, December 1985, 14-19.
38. Deutch, 127.
39. Ibid.
40. Snyder, 24.
41. Ibid., 20.
42. Ibid., 9.

## **Chapter 3**

### **Renewal of a Regime 1991-1993**

Despite the warnings of experts, the international community remained willfully oblivious to the silent spread of nuclear weapons and the impotence of the IAEA. It was only after allied air power laid open Iraq that the truth became obvious—the Band-Aid approach to nonproliferation had failed and major surgery was required, soon, to save the patient. Over the past two years a sweeping series of reforms have been instituted in virtually all areas of nonproliferation. Happily, it now appears that, to a remarkable degree, much of the regime's health is restored.

#### **UN/IAEA Developments**

Perhaps the most striking about-face during this period has been by the United Nations and its nonproliferation inspection agency, the IAEA. As part of the termination process of Desert Storm, the UN Security Council passed the now-famous Security Council Resolution (SCR) 687, which calls for the “destruction, removal, and rendering harmless” of Iraq's weapons of mass destruction.<sup>1</sup> Imposed on the less-than-compliant Iraqis, the enforcement of SCR 687 has been an arduous and educational experience. More than 40 inspections have been conducted since the end of the war and they have all been profoundly different than any of those performed before 1991. Dr David Kay, an IAEA official and the first inspection team leader in Iraq, identified four fundamental differences between the enforcement of SCR 687 and previous nonproliferation inspections: they began following a coerced Iraqi acceptance and a misleading declaration of nuclear weapons-related equipment that survived the war; there was an unprecedented level of deception, fraud, cheating and intimidation on the part of the Iraqis; many of the intrusive inspection techniques employed have never previously been used in arms control; and the inspections were being conducted by a body created for just that purpose, a UN Special Commission (UNSCOM).<sup>2</sup> The commission is a subsidiary organ of the Security Council and provides assistance to the IAEA inspection effort in Iraq. The executive chairman of UNSCOM, Rolf Ekeus, observed that the enforcement of Resolution 687 is the first time the UN has undertaken binding disarmament measures and declares it is “the first modern example of arms control through imposition.”<sup>3</sup> Finally, Hans

Blix, the director of the IAEA, sums up the efforts in Iraq by maintaining that, although much remains to be done to satisfy the terms of SCR 687, "the technical core of the country's weaponization program was discovered and placed under international control."<sup>4</sup>

Shook by its findings in Iraq and energized by the end of the cold war, the UN then looked beyond merely disarming Saddam Hussein. In what may become one of the key dates in nonproliferation history, on 31 January 1992 the Security Council declared nuclear proliferation "a threat to international peace and security." Ekeus sees this declaration as "a generalization derived from Resolution 687."<sup>5</sup> While this may well be true, the full significance of the 31 January statement is that it is inspired by chapter VII of the United Nations Charter, which deals with threats to international peace and security. Specifically, Article 41 of chapter VII provides for the application of economic sanctions against offending parties, while Article 42 covers collective enforcement operations "by air, sea, or land."<sup>6</sup> The placement of nuclear proliferation in this context signals a new and aggressive approach to enforcing nonproliferation, and it represents a considerable shift within the UN—"It was, therefore, a break with tradition when the Security Council on 31 January 1992, meeting at the level of heads of state and government, committed itself to preventing the spread of weapons of mass destruction."<sup>7</sup> The implications of this shift by the United Nations could be profound.

Additionally, the last two years have also seen other less sweeping, but still noteworthy, changes to old ways of doing business. For example, the IAEA Board of Governors has endorsed the use of challenge inspections at suspect sites. This change was long advocated by nonproliferation specialists, but it was certainly the embarrassment experienced over Iraq that finally turned the idea into reality. Challenge inspections are being extensively used in carrying out the terms of SCR 687 in Iraq and are considered "highly successful."<sup>8</sup> The new IAEA policy is that special inspections will be requested whenever there is reason to believe that undeclared nuclear material exists at a location. If the host government refuses to allow the inspection, the Board of Governors reports the violation to the Security Council, which then makes the appropriate chapter VII determination regarding "appropriate measures" under the 31 January framework.<sup>9</sup> Finally, on the supply side, the Nuclear Suppliers' Group, an independent organization comprised of the fifteen primary nuclear supplier nations, extended its export controls to include dual-use technologies and banned major new nuclear exports to countries like India, Pakistan, and Israel that continue to operate facilities outside IAEA supervision.<sup>10</sup>

## **NPT Developments**

Fortunately, the effective inspections of Iraq have not been the only recent sign of hope for the nonproliferation regime. The bulwark of nonproliferation,

the NPT, has also been the object of much attention over the past two years. Two longtime NPT holdouts, and two of the original five nuclear weapons states, China and France, joined the NPT in 1992, with China signing in March and France in August. Even more dramatically, South Africa, which acceded to the treaty in July 1991, recently announced that it had destroyed its secret inventory of six nuclear weapons in 1990.<sup>11</sup> The weapons were assembled in the 1970s and 1980s, and were apparently in response to communist incursions in neighboring Mozambique, Angola, and Zimbabwe.<sup>12</sup> The decision, made by President F.W. de Klerk shortly after assuming office as part of his attempt to bring South Africa back into the international family of nations, represents the first time a nation with nuclear weapons has voluntarily dismantled its force. Finally, de Klerk promises that the IAEA will have "full access" to South African nuclear facilities and that "South Africa is strictly adhering to the requirements of the Nuclear Nonproliferation Treaty and will continue to do so."<sup>13</sup> Additionally, Argentina and Brazil, although still refusing to sign the NPT, have taken steps to assure one another and the international community that they have indeed reversed their earlier nuclear weapons programs. Both countries have well-developed civilian nuclear power industries and, while under military domination in the 1980s, developed uranium enrichment capabilities not subject to IAEA monitoring. Now, under democratic rule, the two countries appear to have backed away from weapons development. In December 1990 they signed an agreement for bilateral inspections as well as full IAEA monitoring, and concluded their full safeguards agreements with the agency in December 1992.<sup>14</sup> Lastly, the United States and the former Soviet Union are fulfilling their obligation under Article VI of the NPT to "pursue negotiations in good faith to end the nuclear arms race as a step toward eventual nuclear disarmament."<sup>15</sup> In the words of Leonard Spector, Moscow and Washington are "for the first time in decades, not only preaching nonproliferation but practicing it as well."<sup>16</sup>

## US Initiatives

As the source of most of the military power needed to subdue Saddam Hussein, the proliferation lessons of Iraq have not been lost on the United States. Immediately after the war, the Bush administration initiated another round of peace talks in the Middle East, where the spread of weapons of mass destruction occupied a prominent place on the agenda. While progress is agonizingly slow, there are occasional reasons for optimism. In Israel, for instance, "the Gulf War has forced a quiet rethinking of the nuclear issue" and calls are periodically made by both Arabs and Israelis for making the region a nuclear-free zone.<sup>17</sup> Also, the Clinton administration, as mentioned at the outset, is committed to nonproliferation and gives it top billing in the foreign policy arena. Some evidence of this push can be seen in the creation of

an Assistant Secretary of Defense for Nuclear Security and Counterproliferation. Also, the nuclear intelligence debacle pointed out by Desert Storm was the impetus behind the forming of a 100-person Nonproliferation Center in the CIA.<sup>18</sup> Likewise, the legislative branch has recently intensified its nonproliferation focus. In an attempt to further tighten export controls, Sen John McCain introduced legislation that would identify and target nations that threaten world peace, tightly restrict transfers of US arms and technologies to aggressor states, establish sanctions against both companies and buyer nations that violate restrictions, and deny "most favored nation" status to any nation that provides sensitive technology to the nations identified.<sup>19</sup> Also with an eye toward limiting the spread of nuclear weapons, materials, or technologies, the Congress passed the Soviet Nuclear Threat Reduction Act of 1991, which earmarked \$400 million "to facilitate the transportation, storage, safeguarding, and destruction of Soviet nuclear, chemical and other weapons and to help prevent proliferation."<sup>20</sup>

### **The Rest of the Story...**

Obviously, the nonproliferation regime made a strong comeback from its nadir in Iraq. As a result of strong action by the United Nations, the IAEA, and the industrialized nations, nuclear proliferation would seem to be in retreat. Unfortunately, an equally strong current leading toward *increased* proliferation persists. Part of this contrarious trend is the result of the persistent efforts of a determined few, while part is the unintended and unfortunate consequence of other, more positive developments.

### **The End of the Cold War**

The cessation of hostilities between the superpowers is certainly the most welcome global development since August 1945, and the results are overwhelmingly positive. As with most major shifts, however, there is a downside, and in this case its name is proliferation. In ways largely unanticipated during the heady days of 1989, the end of the cold war has placed powerful proliferation pressures on the international system. First, and most basic, the dissolution of one superpower and the neo-isolationism of the other has meant the end of many security guarantees once held out to allies in exchange for their allegiance. This loss of extended deterrence has placed developing nations in the position of having to provide their own security to an unprecedented degree. Not surprisingly, many nations are thinking about developing nuclear weapons to protect themselves. In the words of *The Economist*, the end of the cold war has left "nervous ex-clients reaching for new forms of defense, and ambitious ex-clients reaching for new means of aggression."<sup>21</sup> Accordingly, time is short and the pressure on the



nonproliferation regime to succeed is enormous, for if it appears to nervous nations that their rivals are succeeding in gaining a nuclear weapons capability, or to the ambitious few that they can get away with it, then the entire nonproliferation regime could quickly unravel. Thus, the world could be faced with the "ironic outcome that the widely welcomed end of the Cold War may increase the prospect of nuclear use."<sup>22</sup> Somewhat more specifically, superpower retrenchment has meant power vacuums now exist in what were some of the more hotly contested regions of the world, such as Eastern Europe, the Middle East, and, perhaps, the Korean Peninsula. As vacuums do not long exist, it is the job of the defenders of the nuclear status quo to get the point across that proliferation is not a profitable option for those who may attempt to take advantage of today's unsettled international conditions.

### **Back in the USSR**

While the opportunities for nuclear mischief in the newly abandoned regions of the world certainly deserve our serious attention, the most dangerous situation lies squarely within the borders of the former Soviet Union. The possibilities for catastrophe in Russia and the other nuclear republics are difficult to overstate. There are, for example, unresolved questions about the nuclear status of many of the Soviet successor states. Shortly after the formation of the Commonwealth of Independent States, Belarus, Kazakhstan, and Ukraine all agreed that Russia would inherit the Soviet mantle as an NPT nuclear state, that all three would return to Russia the Soviet nuclear weapons on their soil, and that they would sign the NPT and Strategic Arms Reduction Treaty as nonnuclear nations. While Belarus and Kazakhstan have so far lived up to their bargains, the Ukraine Republic, remembering its bloody history with Russia, has been dragging its heels and her leaders have been making some not very subtle references to enjoying life as an instant nuclear power. As a result, the international arms control and nonproliferation communities must idly remain on the sidelines until this unprecedented scene is played out internally.

In a related vein, there are some significant and growing doubts about the extent to which Russia has secure command and control over the thousands of nuclear warheads spread across former Soviet soil. Some reports, if true, are the stuff of arms controllers' nightmares, such as the allegation that "In the Ukraine, local military commanders and plant managers decide what will be sold and to whom."<sup>23</sup> The implications of this lethal free market in a land dotted with thousands of small, transportable tactical nuclear weapons are as disturbing as they are obvious. While there have been as yet no confirmed reports of a loss of nuclear command and control, it seems more a matter of when than if. Indeed, some analysts feel the potential for some type of illicit nuclear transfer, sale or theft emanating from the former Soviet Union is so

serious that it has supplanted more traditional concerns as the most dangerous proliferation problem in the world today. For example,

... the risks of proliferation arising out of the breakdown of the Soviet arsenal are far more immediate and substantial than the traditional risks. ... The real problem is preventing movement of fissile materials and ready-made weapons. ... North Korea and Iran have to be watched carefully. ... the chances of new nuclear weapons states emerging by making their own nuclear weapons are not very high. But the risks of fissile materials and nuclear weapons seeping out of ex-Soviet republics to state and non-state actors are much more significant.<sup>24</sup>

What makes all of this so dangerous is that it is unprecedented. Empires come and empires go, but, as Joseph Nye reminds us, "never has the world seen the decline and disintegration of an empire possessing some 30,000 nuclear weapons."<sup>25</sup>

But even if Russia and the Ukraine Republic resolve their nuclear disagreements soon and peacefully, and even if Russia really does have a firm handle on all 30,000 warheads, there are still several significant proliferation issues that impatiently await attention. For example, there are several extremely advanced nuclear component design, development, fabrication, manufacture, and testing facilities in the former Soviet Union that are proliferation tar babies in waiting. Leonard Spector singles out one facility as particularly troublesome—"the greatest threat will come at the Semipalatinsk nuclear test site in overwhelmingly Islamic republic of Kazakhstan, which includes some of the finest assembly and fabricating facilities in the world. In May 1992 Kazakhstan announced plans to establish a nuclear research center at the site."<sup>26</sup> Other than the overwhelming inspection challenges they represent to organizations such as the IAEA, they also are ready-made answers to those wanting a quick, proven, and relatively untraceable route to nuclear weapons capability—as well as a source of currency to hard-pressed former Soviet vassals.

The IAEA will also have its hands full when confronting the decaying former Soviet civilian nuclear industry, a system comprised of "creaky nuclear installations and an enormous stockpile of weapons-grade uranium and plutonium."<sup>27</sup> Establishing an initial baseline will itself be a challenge—"the IAEA will have the difficult task of verifying that all the nuclear materials in civilian power plants, research reactors and other facilities have come under its inspection system. Many of these facilities have sizable amounts of plutonium and highly enriched uranium and establishing initial inventories will be exceedingly difficult, if not impossible."<sup>28</sup>

There is yet another aspect to the "former Soviet problem," one that does not involve nuclear materials or facilities. The Soviet nuclear industry, military and civilian, employed tens of thousands of highly trained personnel, many of whom are now looking for work. Although it is true that the overwhelming majority are resisting temptation, some may already have found new employment, as one report claims that 60 former Soviet scientists are now spread throughout India, Pakistan, Iraq, Iran, and Brazil.<sup>29</sup> Russia and the United States are both working on programs to prevent this nuclear

brain drain, but time is critical. Unfortunately, it appears that the official machinery is just creeping along, as Russian officials claim that *none* of the \$400 million to be provided by the US Soviet Nuclear Threat Reduction Act of 1991 has been delivered.<sup>30</sup>

Finally, from the standpoint of those involved in the supply-side of the nuclear equation, the breakup of the Soviet Union presents sizable challenges as well. Essentially, the possibility exists that the world nuclear market could soon have an additional dozen or so suppliers with tons of plutonium and highly enriched uranium to sell—all of whom are asset rich and cash poor. This is a truly unfortunate outcome of the end of the cold war, for one of the strongest supporters of nuclear supply-side controls was the old Soviet Union. This US-Soviet cooperation was important in bolstering nonproliferation norms, removing from the market a major potential supply of nuclear material and equipment, and in strengthening nuclear export guidelines.<sup>31</sup> Now, however, with Soviet authority replaced by private trading companies, the prospect that the world supply of nuclear items may soon swell is perhaps becoming more likely than merely possible.<sup>32</sup> Indeed, there are some indications this process has already begun. One private Russian company, Chetek, is already offering to conduct nuclear explosions for commercial purposes. Further, representatives of nations known to be seeking nuclear weapons have already been to Moscow to inquire about the availability of nuclear components and technology.<sup>33</sup> In sum, while the West is doing its best to tighten export controls in the aftermath of Desert Storm, there is an enormous potential source of nuclear supply in the midst of near chaos, a source that is largely beyond our control.

## Elsewhere

Unfortunately, despite recent successes in South Africa, Argentina, and Brazil, the demand side of the nuclear equation appears equally robust. Predictably, much of the trouble comes from the Middle East. Iran, for instance, increasingly shows signs of trying to obtain a nuclear weapons capability. One indication is from President Rafsanjani, in his famous 1988 quote from the Iran-Iraq War—"We must fully equip ourselves with defensive and offensive chemical, biological, and radioactive weapons."<sup>34</sup> Rhetoric aside, and other than actually using chemical weapons in war, Iran has made several recent moves since Desert Storm that all point to a quest for nuclear weapons. For example, Iran has concluded agreements with China and Russia for the construction of two nuclear power plants, ostensibly for research and power production, despite being short on cash and long on natural gas.<sup>35</sup> Additionally, Iran has been recently linked with both Pakistan and North Korea on nuclear projects. The most disturbing report claims that the Iranian government is paying the financially strapped North Koreans \$500 million for an unspecified number of nuclear weapons and the designs for nuclear

reprocessing plants.<sup>36</sup> Iran, of course, is an NPT signatory, but as the Iraqis demonstrated, the treaty is not an insurmountable obstacle. Indeed, the Iranians may envision an Iraqi-like program, covert weapons development in tandem with a declared civilian nuclear power industry.

Iran is not the only state in the region that appears to covet nuclear weapons. Syria, Algeria, and Libya are all apparently at various stages of nuclear development.<sup>37</sup> One need only recall Col Muammar Qadhafi's oft-quoted statement after El Dorado Canyon in 1986 that, if possible, he would use nuclear weapons against New York City to gain an appreciation of the costs and risks that could come with our continued involvement in the Middle East.<sup>38</sup>

Finally, for at least as long as Saddam Hussein is in power, Iraq may be down but not out. Despite the best efforts of UN inspectors, much of Iraq's nuclear-related equipment and infrastructure is proving remarkably resistant to discovery and destruction. This includes an estimate by the director of the CIA that some 200 Scud missiles are still hidden in Iraq, and perhaps more missiles and other material is being stored in Jordan.<sup>39</sup> The work must continue until the job is done, for as Rolf Ekeus recently claimed, the Iraqi nuclear program could "spring up like mushrooms in the rain" if sanctions are lifted prematurely.<sup>40</sup>

In short, a combustible combination of Arab wealth and determination makes it appear that, barring a resolute showing by the forces of nonproliferation, Israel's nuclear monopoly will not long hold and the Middle East may well become the location for the world's second nuclear arms race.

Finally, the most notorious current threat to the nonproliferation regime is not located in the Middle East, but in Asia. North Korea's dramatic and ominous pullout from the NPT in March of this year is an open challenge to the new stance of the Security Council, but exactly what to do is not an easy question. The conventional explanation for North Korea's unprecedented action—that it has something to hide—is hard to disagree with. As described earlier, North Korea, under international pressure and allegedly as the price for continued Soviet aid, signed the NPT in 1985. It succeeded, however, in delaying the signing of the mandatory safeguards agreement with the IAEA for some six years, until late 1991. Finally, in 1992 the IAEA began preliminary inspections, in the face of considerable North Korean resistance. Then the understandably nervous South Koreans and Japanese insisted on short-notice, intrusive inspections, particularly at two suspicious sites near the large Yongbyon reactor, approximately 60 miles from Pyongyang. North Korea refused the inspection requests and subsequently announced its intention to withdraw from the Nonproliferation Treaty. Thus, the stage is now set for the first major test of the post-Desert Storm version of the nonproliferation regime.

All in all, this busy two-year period from the conclusion of Desert Storm until today has been a story of nonproliferation ups and downs, of good news and bad news. The good is best summarized by the simple recognition that nonproliferation is now no one's stepchild. Desert Storm has had a curative

effect. The issue has become paramount in priority, and its enforcement regime is becoming correspondingly more aggressive. On the downside, the job of nonproliferation, always hard, is becoming harder. The end of the cold war has unleashed new forces, forces that threaten to offset the gains made in reducing the vertical proliferation experienced in the cold war with a horizontal spread in nuclear capability elsewhere in the world. We need answers to prevent this possibility from becoming reality. In other words, "the end of two wars—the war in the Persian Gulf and the cold war—calls for new thinking on old subjects."<sup>41</sup>

#### Notes

1. Rolf Ekeus, "The Iraqi Experience and the Future of Nuclear Nonproliferation," *The Washington Quarterly*, Autumn 1992, 68.
2. David Kay, "Iraqi Arms: not ready for inspection," *Army & Defence Quarterly Journal*, October 1992, 427–30.
3. Ekeus, 68.
4. Hans Blix, "Verification of Nuclear Nonproliferation: The Lesson of Iraq," *The Washington Quarterly*, Autumn 1992, 59.
5. Ekeus, 68.
6. John Mackinlay and Jarat Chopra, "Second Generation Multinational Operations," *The Washington Quarterly*, Summer 1992, 117.
7. Ekeus, 68.
8. Blix, 59.
9. *Ibid.*, 61–62.
10. Leonard S. Spector, "Repentant Nuclear Proliferants," *Foreign Policy*, Fall 1992, 24.
11. Philip van Niekerk, "South Africa Had 6 A-Bombs," *The Washington Post*, 25 March 1993, 1.
12. *U.S. News & World Report*, 5 April 1993, 14.
13. van Niekerk, 1.
14. Spector, 26–27.
15. "Treaty on the Nonproliferation of Nuclear Weapons," *The Arms Control Reporter*, January 1991, 602.A.3.
16. Spector, 36.
17. Avner Cohen and Marvin Miller, "How to Think About—and Implement—Nuclear Arms Control in the Middle East," *The Washington Quarterly*, Spring 1993, 104.
18. Spector, 24.
19. John McCain, "Controlling Arms Sales to the Third World," *The Washington Quarterly*, Spring 1991, 87–88.
20. "U.S. Implementation of the Soviet Nuclear Threat Reduction Act of 1991," Statement for the Record of Frank C. Conahan, assistant comptroller general, before the Senate Committee on Foreign Relations, US General Accounting Office, 27 July 1992.
21. "Bombs for All?" *The Economist*, 14–20 March 1992, 15.
22. Joseph S. Nye, Jr., "New Approaches to Nuclear Nonproliferation Policy," *Science*, 29 May 1992, 1,297.
23. David A. Fulgham, "Advanced Arms Spread Defies Remote Detection," *Aviation Week & Space Technology*, 9 November 1992, 21.
24. K. Subrahmanyam, "Export Controls and the North-South Controversy," *The Washington Quarterly*, Spring 1993, 139, 141.
25. Nye, 1296.
26. Spector, 33.
27. "Are Nukes on the Loose?" *U.S. News & World Report*, 19 April 1993, 40.

28. Spector, 30.
29. Nye, 1,296.
30. *U.S. News & World Report*, 2 November 1992, 54.
31. William C. Potter, "The New Nuclear Suppliers," *Orbis*, Spring 1992, 207.
32. *Ibid.*, 209.
33. Nye, 1,296.
34. Edward B. Atkeson, "The Middle East: A Dynamic Military Net Assessment for the 1990s," *The Washington Quarterly*, Spring 1993, 121.
35. Daniel Pipes and Patrick Clawson, "Ambitious Iran, Trouble Neighbors," *Foreign Affairs: America and the World 1992/3*, 127.
36. *U.S. News & World Report*, 29 March 1993, 18.
37. Leonard S. Spector, "Nuclear Proliferation in the Middle East," *Orbis*, Spring 1992, 181-98.
38. Thomas G. Mahnken, "The Arrow and the Shield: U.S. Responses to Ballistic Missile Proliferation," *The Washington Quarterly*, Winter 1991, 193.
39. Atkeson, 121.
40. *USA Today*, 25 March 1993, 7.
41. Patricia Bliss McFate, "Where Do We Go from Here: Verifying Future Arms Control Agreements," *The Washington Quarterly*, Autumn 1992, 75.

## **Chapter 4**

### **The Role of Force in Nonproliferation History and Theory**

One of the signs of this new thinking is that military options are becoming increasingly accepted as part of the nonproliferation tool kit, along with traditional diplomatic and economic measures. While the threat or use of force has been an option for policymakers since 1949, they have resorted to it only rarely. Evaluations of military solutions to proliferation crises have been roughly analogous to Herman Kahn's lament over the state of early nuclear theory, no one has been "thinking about the unthinkable." Since Desert Storm, however, many observers have started to acknowledge that diplomatic pressure, export controls, and even economic sanctions are not enough in themselves to prevent further proliferation. A truly effective nonproliferation regime must necessarily include more aggressive means, for "if nuclear nonproliferation is to be established as a central norm of the evolving international system . . . the issue of military attacks on suspect facilities may have to be confronted."<sup>1</sup> One of the primary lessons of Desert Storm is that a nonproliferation policy based exclusively on supply side disincentives and demand side incentives will not work in the face of a resourceful and determined adversary. Such measures, while necessary, are not sufficient to halt the proliferation of nuclear weapons. As a result, it is becoming increasingly apparent that the use or threatened use of military force may soon be as necessary a nonproliferation option as export controls and diplomatic pressure.

Further, with the end of the cold war, our "force calculus" has changed. No longer is there the very real possibility that Iraq, North Korea, Syria, or Libya, for example, might enjoy Soviet protection, either through active assistance or diplomatic obstructionism in the Security Council. The fear that superpower involvement in regional crises could escalate into nuclear war has evaporated. The "negative objectives" that constrained effective US action and paralyzed the UN are largely gone.<sup>2</sup> Another way of viewing this changed equation is that both the costs and risks of fully enforcing nonproliferation are substantially lower than they have been for the past 40 years. In sum, not only is the serious consideration of military options for nonproliferation becoming a necessity, we are now entering an era of unprecedented opportunity as well. There is at least the prospect that, to increase international stability and security, "the United States can use the military prowess it demonstrated in the Persian Gulf to good advantage."<sup>3</sup>

Given that the option of using military force to discourage proliferation is now under serious consideration, we must now answer two questions. First, what is the historical record of the use of force for nonproliferation's sake? Secondly, from a somewhat more theoretical perspective, how do the three classic use-of-force categories—deterrence, compellence, and defense—relate to nonproliferation?

## **A Short History of Force and Nonproliferation**

Turning first to the past, we will take a quick look at three historical attempts to find a military solution to proliferation—Israel's attack on the Iraqi reactor at Osiraq in 1981, coalition strikes against Iraq's NBC facilities during Desert Storm, and the military contribution to the enforcement of Security Council Resolution 687 from 1991 to the present.

### **Osiraq**

On 7 June 1981 fourteen Israeli F-15s and F-16s destroyed Iraq's nearly completed nuclear research reactor at Osiraq, a facility capable of producing weapons-grade plutonium.<sup>4</sup> The F-16s dropped approximately one dozen conventional bombs onto the dome of the reactor, completely destroying the structure, which was never rebuilt. Although the raid took only two minutes, it is still the subject of debate twelve years later. It is without question the most infamous use of military force for the purpose of nonproliferation in history, and is dismissed by most commentators as illegal, counterproductive, and of no relevance today. While the immediate military effectiveness of the Osiraq attack is certain, its longer-range implications certainly are not. Before addressing the current meaning of Osiraq, however, examining the raid in context would be appropriate. To Israel, the Iraqi nuclear program in 1981 constituted a clear and present danger, and one that demanded a solution sooner rather than later. It was, however, the before-the-fact nature of the attack that proved troublesome. Israel justified the attack as the exercise of "anticipatory self-defense." The prevailing interpretation of Article 51 of the UN Charter is that a nation may exercise the right of self-defense when faced with an impending threat.<sup>5</sup> Israel's problem, however, was that waiting for the threat to meet this criterion was not acceptable, for her "political and military strategy dictated that the attack occur before the Osiraq reactor became operational."<sup>6</sup> Thus, although Israel certainly appreciated the political costs such a brazen act would exact, in her view an Iraqi nuclear capability constituted a much greater threat—its existence as a state. Despite Iraqi insistence that its nuclear program was strictly for peaceful uses, Israel contended that the reactor was to become operational shortly and was meant to produce material for atomic bombs.<sup>7</sup> Convinced that an Islamic bomb represented a qualitative and unacceptable expansion of the



forces arrayed against it, and that condemnation carried lower costs than a nuclear-armed Iraq, Israel bit the bullet and struck.

Israel was indeed condemned for the raid. Even her staunchest ally, the United States, criticized the attack's "unprecedented character . . . which cannot but seriously add to the already tense situation in the region," and temporarily suspended the delivery of F-16s to Israel.<sup>8</sup> The majority view was that Israel violated two long-standing precepts of international law. First, many observers charged that Israel "willfully violated the territorial integrity of a sovereign state" without meeting the required conditions for self-defense.<sup>9</sup> The second complaint was that Israel did not resort to force as a last option, selected only after it had exhausted all other means of resolution. Although it is true that Israeli officials had often stated their concern over the direction of the Iraqi nuclear program and called for the West to review its nuclear technology export policies toward the Hussein regime, they failed to bring their case to the Security Council before attempting a military solution. It was this failure to exhaust all diplomatic means of settlement that precipitated the US criticism. Explaining the American decision to join in the UN condemnation of Israel, US Ambassador to the United Nations Jeanne Kirkpatrick commented, "our judgment that Israeli actions violated the UN Charter is based solely on the conviction that Israel failed to exhaust peaceful means for the resolution of this dispute."<sup>10</sup> Finally, Israel was not helped by her reputation in the diplomatic community as something of a rogue state, and, additionally, by its history of thumbing its nose at the nonproliferation regime. As a nonsignatory of the NPT, the Israeli attack on Osiraq was seen by many as an attack not only against Iraq, but also against the nonproliferation regime and the IAEA, which had certified the reactor at Osiraq in January 1981 as fully meeting treaty obligations. Israel, by leveling the Osiraq reactor, was in effect saying that it had lost confidence in the ability of the NPT to ensure that the nuclear programs of its member-states are entirely for peaceful purposes.

The 1993 retrospective view of the attack is, predictably, not at all clear. Israel contends that the international community owes her a debt of gratitude, for had not it not attacked in 1981, Saddam Hussein would have had a nuclear arsenal when he steamrolled across the Iraqi-Kuwaiti border on 4 August 1990.<sup>11</sup> The contrary position is that two wrongs do not make a right: Israel's logic is no more than a "transparent attempt at rationalizing . . . a gross violation of the norms of civilized behavior" and Osiraq was no less a violation of international law than was the occupation of Kuwait.<sup>12</sup> It is also argued that the raid actually *lessened* Israel's long-term security, for it was following the attack in 1981 that Saddam apparently decided to begin the covert nuclear weapons program which was not discovered until after Desert Storm.<sup>13</sup> It appears that both Israel and its detractors are right. On the one hand, it is commonly agreed that Iraq was indeed pursuing a nuclear weapons capability before the attack, while enjoying both IAEA certification and Western assistance. To the extent that the attack on Osiraq delayed Iraq's acquisition of weapons-grade nuclear materials, Israel did "buy more time" for

the international community, and it must be allowed that had not the attack occurred Iraq *may* have had nuclear weapons by 1990. On the other hand, however, one cannot deny that Israel's use of force was premature. Iraq was not even close to having a weapons capability in June of 1981. Ample time existed to exhaust other solutions. Whether those attempts would have succeeded will of course never be known, but that is not the point. Unilateral military action must be the last possible recourse, not one of the first. Simply put, Israel had the obligation to work harder diplomatically, which she did not do.

### **Desert Storm**

The next use of force against a would-be proliferator again involved Iraq, but the similarities between Osiraq and Coalition strikes against Iraqi nuclear facilities end there. The most obvious difference was that the Desert Storm attacks were part of a war, and not an act of preemption. Though obvious, this distinction should not be trivialized, for the reaction caused by the two events differs considerably. Allied missions flown against Iraq's NBC facilities during the Persian Gulf War created no controversy; indeed, sparing them would have been the source of much criticism. A similar example is less well known, but is actually ironic. The world certainly remembers, and not fondly, Israel's attack on the Osiraq reactor in June of 1981. But what is almost entirely forgotten is that Iran attacked the very same reactor only a few months earlier, in September 1980, during the opening months of the eight-year Iran-Iraq War.<sup>14</sup> That this attack has receded from international memory is probably due to three factors—that the attack failed, that it was not done by Israel, and that it occurred during a war. For our purposes we will concentrate on the third possibility, and simply use it to show that it is often neither the target nor the means employed that is the object of debate, but rather the timing of the attack.

The second difference between Osiraq and Desert Storm is also obvious. Israel's raid was the act of one state against another, acting entirely on its own and without consultation with the international community. As mentioned above, Israel did not take the matter to the United Nations, nor consult with or even inform the United States.<sup>15</sup> In contrast, the military action in Desert Storm was a true multilateral effort that represented the consensus of the international community, rather than any one country acting unilaterally.

Desert Storm's third distinguishing characteristic is quite similar; a military solution followed only after all other reasonable avenues were explored and found wanting. In proper order, diplomatic initiatives and economic sanctions failed before it became obvious that the cure in this case must be forcibly administered. To give Saddam every chance to reconsider, the Coalition even went so far as to preannounce the date on which hostilities would commence, a remarkable breach of the traditional military emphasis on surprise.

The fourth and final difference between Coalition strikes against Iraq's nuclear facilities and the Israeli raid ten years earlier is an unfortunate one. Namely, Osiraq was militarily successful. During the planning for the 1991 war, destroying the burgeoning Iraqi NBC capability through air power was an objective that "became a durable war aim."<sup>16</sup> In war, however, goals are not always fully realized. From today's vantage point, it is plain that much more of Hussein's nuclear program survived than we would have liked. According to some estimates, "of an estimated 30 facilities related to Iraq's mammoth pre-war nuclear program . . . only three were attacked by coalition air forces."<sup>17</sup> Certainly in the early days of the air war over Iraq, the *known* nuclear, biological and chemical targets were the object of considerable attention—some 535 aircraft and cruise missile sorties attacked thirty-one NBC sites in the first twenty-four hours alone.<sup>18</sup> In particular, F-117A attacks were highly effective. As the Iraqis had hardened many of these high-value facilities, the hard-target-kill capability of the 117s proved invaluable. Yet, it is important to note not just what was attacked, but what was spared as well. Allied planners were careful to distinguish between civilian and military nuclear targets. Specifically, the declared nuclear facilities which were under IAEA safeguards were *not* subjected to any Coalition bombing.<sup>19</sup> We directed our military effort solely at Saddam's secret nuclear weapons program.

The problem in attacking Iraqi nuclear weapons facilities did not center on destroying them, but in knowing that they even existed. Here, too, we find the influence of Osiraq, for after that raid Saddam did a masterful job in dispersing, hardening, and concealing his nuclear research and production facilities, while the international community did a very poor job of monitoring them. In other words,

the 1981 Israeli attack, while it postponed realization of Iraq's nuclear ambitions, made it all the more difficult for the U.S. Air Force to erase Saddam Hussein's nuclear program a decade later . . . Western intelligence agencies simply missed the scope and intensity of Iraqi efforts to acquire ballistic missiles and hyper-lethal weapons . . . the result blinded air war planners to the very existence of many important targets.<sup>20</sup>

Thus, a series of intelligence failures in peacetime led directly to a wartime military failure. Much of Iraq's nuclear program survived the war. Had not the war occurred, however, Saddam Hussein would now have nuclear weapons. And so, from the standpoint of nonproliferation, the misguided decision to annex Kuwait was a blessing in disguise.

### **Post-Desert Storm Enforcement**

Knowing that a 42-day war could not destroy a nuclear program that had been years in the making, and becoming increasingly aware that prewar estimates of the magnitude of that program were seriously deficient, the UN Security Council passed Security Council Resolution 687 as part of the war termination process. Thus today, more than two years later, the struggle to prevent Iraq from gaining a nuclear weapons capability continues. Here the

exercise of military power has a role, but one considerably different than the overt hostilities of early 1991. The heroic inspection efforts to force Iraq to comply with the terms of Security Council Resolution 687 have been described earlier. To summarize, they have been successful, but much more remains to be done to ensure that the terms of the resolution—the “destruction, removal, and rendering harmless” of Iraq’s weapons of mass destruction—are fully complied with. From the beginning UN inspections have been marked by Iraqi deceit and intransigence. Never has there been a less gracious host than Iraq, and it is precisely here that force—to be exact, air power—has played a decisive role.

Without the daily threat of force Iraq would not allow UN inspectors to do their job of systematically finding and destroying Iraq’s remaining nuclear program. The Iraqis were forthright in their attitude toward SCR 687, admitting that they had “no choice but to accept the resolution.”<sup>21</sup> The United Nations soon learned, however, that accepting the letter of a resolution is a far cry from embracing its intent. At every step Iraqi officials delayed, deceived, and even detained UN personnel in order to prevent inspectors from uncovering nuclear secrets. In one now-famous incident, after finding key nuclear information, the Iraqis detained IAEA inspectors for four days in a Baghdad parking lot before releasing them.<sup>22</sup> Likewise, the existence of the oft-denied nuclear weapons program was not discovered as a result of any voluntary compliance, but was instead the result of a surprise inspection at Iraq’s atomic energy headquarters.<sup>23</sup> Finally, the Iraqis even went to the almost inconceivable extreme of moving radioactive waste by trucks across the desert ahead of inspectors. Iraq’s hostility toward the inspection effort was such that “in several key confrontations during the summer of 1991, it was necessary for the United States to back up the Security Council’s demands with the threat of force.”<sup>24</sup> Air Force and naval aircraft, as well as the Navy’s sea-launched cruise missiles, remain positioned to provide the encouragement Iraq apparently needs to allow inspectors the access necessary to accomplish their tasks.

Beyond providing this none-too-veiled threat of offensive action, air power also performs a valuable supporting role to the UN as well. As indicated above, inadequate reconnaissance and intelligence functions have previously hampered nonproliferation efforts. Recognizing that Iraq will hardly be forthcoming with information on its weapons programs, the US is supplying the UNSCOM in Iraq with its own eyes and ears by providing U-2 aircraft that operate under UNSCOM and bear UN registration.<sup>25</sup> Similarly, US helicopters and German transport aircraft provide logistical support for the UN teams throughout Iraq.<sup>26</sup> This unprecedented series of inspections has done much to finish what Desert Storm started. However, it is also becoming increasingly apparent that, despite the successes of these past two years, a substantial portion of Iraq’s nuclear program has not yet been located, much less dismantled and removed. Among the missing items are a computer data base detailing the entire nuclear weapons program, plutonium extraction

equipment, millions of dollars worth of US supplied computers to be used for atomic bomb design, and an underground reactor.<sup>27</sup>

The extent to which the enforcement of Security Council Resolution 687 may serve as a model for future UN action remains uncertain. But what is readily apparent is that the nonproliferation regime is currently in the midst of something entirely new, what Hans Blix calls "arms control through imposition," and that a reinvigorated United Nations is willing to use whatever tools may be necessary to finish the job. It is thus essential we recognize that the uses of force to reinforce nonproliferation are not limited to times of war. Though some rightfully point out that more of Iraq's nuclear capability has been destroyed by inspection than by bombing, this misses the larger point that it was only through the direct application of force in 1991 that UN personnel gained entry into Iraq, and it was also only due to the coercive threat of resumed violence that they are grudgingly allowed to continue inspecting. Finally, the use of military assets for the purposes of intelligence gathering and airlift provide invaluable support to the inspection effort. It seems apparent that here we have a remarkable and synergistic combination of military force and international inspections. In problem cases such as Iraq both are necessary; neither is sufficient. But in concert they offer the international community its best chance to reform even the most unrepentant regimes, *if* the will is there to persist "until the frisking job is finished."<sup>28</sup>

## **Theory and Nonproliferation**

We have just examined three uses of force in the name of nonproliferation—one a preemptive strike, another incidental to a full-scale conventional war, and yet a third as a tool of postwar compliance and enforcement. Are these three examples merely discrete historical events, or are they part of some larger whole? Specifically, do these instances of the use of force correspond to any pertinent theoretical nonproliferation framework? To this end, we now turn to Robert Art's famous taxonomy of force, that military power is primarily used in three ways—to deter, to compel, and to defend.<sup>29</sup>

### **Deterrence**

Deterrence is a concept with which all Americans are familiar. As a result of participating in a cold war for over 40 years, we intuitively understand Glenn Snyder's classic definition of the concept, offered some 32 years ago: "deterrence means discouraging the enemy from taking military action by posing for him a prospect of cost and risk outweighing his prospective gain."<sup>30</sup> From the cold war we also derived an understanding of deterrence in a nuclear context. A crucial part of nuclear deterrence is the implicit but well understood imperative that it be perfect. In other words, we have come to see

deterrence as using a "kind of threat which we feel must be absolutely effective, allowing for no breakdowns ever."<sup>31</sup> While one of the reasons for this demand for perfection is certainly that the consequences of nuclear war are so horrific, another, it must be admitted, is that the record of conventional deterrence is so poor. Too often have leaders calculated potential costs and risks as small and prospective gains large, only to find themselves in wars that invert the proportion. While the frequent failure of conventional deterrence is an unhappy fact, its spotty record does not, however, invalidate its goal. One of the proper functions of any military force is to present a potential adversary with the expectation that mischief will not go unpunished, that cost will exceed gain.

When it comes to applying deterrence in the arena of nuclear nonproliferation, it has not been tried, at least not in the traditional military sense. For deterrence to succeed, it must decisively influence four judgments made by the one seeking to act and change the status quo. Specifically, these judgments include "(1) his valuation of his war objectives; (2) the costs which he expects to suffer as a result of various possible responses by the deterrer; (3) the probability of various responses; and (4) the probability of winning the objectives with each possible response."<sup>32</sup> By substituting "desire to obtain nuclear weapons" for "war objectives," we can readily see that the international community (the supposed deterrer) has done little to convince the Saddam Husseins and Kim Il-Sungs of the world that their attempts to develop nuclear weapons, treaty commitments or not, will fail. But what about Osiraq? For the above calculus to produce deterrence (which in our case would be the decision *not* to seek nuclear weapons) the costs (factor 2), the expected responses (factor 3), and the probability of success (factor 4), must all be understood by the potential proliferator BEFORE attempting to develop or continue developing a weapons capability. For "proliferation deterrence" to succeed, it would in theory have to convince the proliferator that the costs of seeking nuclear weapons would be prohibitively high, that a stern response would be likely, and that the probability of being successful in the face of such opposition would be low. If such unpromising answers to factors 2-4 outweigh factor 1 (the value the proliferator places on obtaining nuclear weapons), then deterrence will presumably succeed. If they do not, then deterrence and the international community will have to "make good" on its threat of strong action.

It is entirely possible that the leaders of such countries as Iraq, Iran, and North Korea, to cite three examples, have performed such calculations. If they have, it is also likely that they have concluded that the consequences of attempting to obtain nuclear weapons would not be severe. To the extent that to deter means "to prevent from action by fear of consequences,"<sup>33</sup> deterrence against proliferation is still waiting for its opportunity. A serious attempt to establish this form of deterrence would certainly be a new application of the concept, and hopes should perhaps not be too high. It would take time, and perhaps a test case or two, to establish the credibility of a threat to actually respond. And it must always be admitted that there are leaders who cannot

be deterred, whose determination to develop nuclear weapons knows no limit. Deterrence does indeed rest on "the assumptions and logic of the cost-benefit/rational actor model of behavior"<sup>34</sup> in a world that can be illogical and irrational. As opposed to nuclear deterrence, however, we must not demand that proliferation deterrence be perfect to admit that it may have some value. Further, this type of deterrence would be relatively inexpensive. No new capabilities are required, only a new way of thinking about those we already possess. Finally, this form of deterrence might have valuable indirect benefits as well. For example, diplomatic initiatives and economic threats may enjoy greater success, as the credible likelihood of using force might help convince would-be proliferators of the ultimate futility of their pursuit of nuclear weapons.<sup>35</sup> Faced with a lower probability of success, they may see the wisdom of agreeing to less drastic solutions. In sum, while applying the principles of deterrence to the problems of proliferation cannot be expected to work miracles, it certainly has greater promise than the feeble obstacles we have thus far placed in the path of those who flout the international norm of nonproliferation.

## **Compellence**

Although the role of deterrence is vital, the threat it poses to raise costs above gains is not enough. At first glance, compellence may seem to complement the effects of deterrence. But as Thomas Schelling established in his pivotal book *Arms and Influence*, the two are in many ways polar opposites. Where deterrence is essentially a defensive reaction and meant to convince others not to change existing arrangements, compellence is inherently offensive and seeks to restore the status quo. Likewise, deterrence is static and consists of setting the stage and waiting, while compellence is more dynamic and involves initiating action that ceases only when the enemy responds correctly.<sup>36</sup> Finally, deterrence is the negative use of power, as opposed to the positive use that inheres in the power to coerce or compel.<sup>37</sup> Simply put, compellence is forcibly changing behavior, and it comes in two varieties. The weaker variant is to force another party to cease and desist some action, while the stronger form seeks a reversal of an action already taken. As it is easier to stop an action in progress than to undo one already completed, the stronger variant is more difficult. Also, stopping asks less of an adversary than undoing, is more likely complied with, and is easier to enforce.<sup>38</sup>

From the standpoint of nonproliferation, compellence can take three forms. The first is compellence in its traditional sense, as taking place during war. Desert Storm was a textbook case of this form of compellence. Although the war in the Persian Gulf was not principally about Saddam's nuclear program, the elimination of his NBC capability was an operational objective in support of the larger strategic goal of enhancing the long-term security and stability of the region. The use of air power for this purpose, as part of "wartime offensive military operations," was certainly a compellent use of force.<sup>39</sup> The other two

forms of compellence in nonproliferation are less orthodox. The prewar use of air power in this context usually goes by another name—preemption. Although Osiraq remains the only recorded example of preemption in nonproliferation history, rumors persist that India considered preempting Pakistan's developing nuclear weapons capability during the 1980s. As mentioned earlier, Israel reportedly encouraged India to strike Pakistan "before it is too late."<sup>40</sup> This last phrase points out the limits of preemption; namely, that the destruction of nuclear facilities should occur *before* a proliferator obtains a weapons capability. Here we see the truth of the proposition discussed above, that it is relatively easier to "compel" a cease-and-desist result (to stop pursuing a nuclear capability) than it is to force an action to be undone (to give up nuclear weapons already built). This is because exponentially increased costs discourage such attacks after an adversary is armed with nuclear weapons, thus leaving the parties to cope with an uneasy balance of terror. And, if the near-nuclear escalation between India and Pakistan in the spring of 1990 is any indication, this is a balance that is precarious at best and would have truly terrifying consequences if it failed.

This same imperative to act before an aggressor achieves a nuclear capability can be seen in perhaps the very first nonproliferation success, the Cuban missile crisis of October 1962. In a manner consistent with the proposition that stopping is easier than undoing, the Kennedy administration worked feverishly to solve the crisis before the missiles became operational. While the US and the Soviet Union found a diplomatic solution, the record shows that a compelling, preemptive use of force by aircraft carrying conventional weapons was the next option in line. Also, the additional lesson must not be lost that the Soviets soon recognized the credible threat of a military response to their provocation in Cuba, and this recognition played an instrumental role in their decision to withdraw.<sup>41</sup> Nonetheless, despite rumors in India and a close call in Cuba, the preemption at Osiraq remains unique. Ignoring for the moment the ultimate results of its action, the situation in June 1981 met Israel's logical requirements for preemption. In her view, the long-term risk of a nuclear Iraq outweighed any immediate costs incurred by a preemptive attack. To Israeli leadership, the greater harm was in just watching and waiting while Iraq armed herself.

The final compellent use of force for nonproliferation is in postwar enforcement, as seen in the UN effort in support of Security Council Resolution 687. Although this is a new application of this form of compellence, it is still compellence nevertheless. Iraq, after all, is not voluntarily allowing the inspections to occur. As described above, from the outset inspections have occurred *only* because the Iraqis are being made to comply. This is a case of coercive diplomacy, based on latent force and its "capacity to hurt."<sup>42</sup> In sum, while using compellence as a instrument of nonproliferation may be new, we should not expect the novelty to last long. It is unlikely that Desert Storm, Osiraq, or Resolution 687 will be the last of their kind. Due to a combination of the end of the cold war, a growing sense that proliferation is a threat



demanding a stronger response, and the bold Security Council pronouncement of January 1992, we can expect to see additional uses of compellence for purposes of nonproliferation.

## **Defense**

The last classic use of force we will discuss is that of defense. As a general statement, defending becomes important when deterring appears unlikely. It means "reducing our own prospective costs and risks in the event that deterrence fails."<sup>43</sup> As relates to the spread of nuclear weapons, this would be a world with a multitude of nuclear-armed states, many of whom are hostile to the United States. The form of defense most often touted for this type of world is some variation of ballistic missile defense (BMD), ranging from President Ronald Reagan's SDI to a limited application of Patriot missiles, as used against Iraqi Scuds during Desert Storm. Somewhere in between these two extremes would be a BMD for the continental United States for the purposes of defending against ballistic missiles launched by third world countries. Although in any guise missile defenses represent a relatively expensive option, there is value in the idea. While America's geographic separation from most of the world's troubled areas has long been a source of comfort, technology is rapidly taking this isolation away. A particularly alarming development is that ballistic missiles are no longer the exclusive preserve of the established powers. In something of an irony, at the same time the superpowers are drastically reducing their ballistic missile inventories, much of the developing world appears intent on acquiring them. The Iran-Iraq War of the 1980s was the world's first where both sides fired ballistic missiles at one another. During the eight year period between 1980 and 1988 the Iraqis and Iranians exchanged hundreds of missiles, frequently against cities.<sup>44</sup> According to another estimate, the two sides launched approximately 1,000 missiles, while Iraq fired about 80 modified Scuds against cities in Israel and Saudi Arabia during Desert Storm in 1991.<sup>45</sup> Although the missiles were crude and relatively ineffective, some see them as a portent of things to come. Indeed, the future is much closer than many think. Approximately 14 nations now have ballistic missiles and ten more are expected to achieve missile capability within ten years.<sup>46</sup> Furthermore, a disturbing combination is that many of the countries developing ballistic missiles are in hot pursuit of nuclear weapons as well. Currently, four third world nations with ballistic missiles have or are very close to having nuclear weapons, and four more could join them by the turn of the century.<sup>47</sup> Finally, not only are the numbers of missiles and the nations possessing them increasing, but their capabilities are rapidly increasing as well. Although most missiles possessed by third world nations currently have ranges limited to below 1,000 kilometers (km), by the end of the decade, "six or more countries probably will have missiles with ranges up to 3,000 km, three may have missiles with ranges up to 5,500 km, and some could have missiles able to reach the United States."<sup>48</sup> Furthermore, the list of countries developing

ballistic missiles is not comforting—Iran, Iraq, Libya, North Korea, and Syria for example.<sup>49</sup> To the extent that the future sees the emergence of an unholy trinity of nuclear weapons, ballistic missiles, and hostility toward the United States, then what is today a subject of theoretical interest may become a matter of practical necessity. In sum, if we prove unable, or unwilling, to slow the spread of nuclear weapons and ballistic missiles, then some form of active ballistic missile defense may become an expensive, but unavoidable, last line of defense.

### Notes

1. John Simpson and Darryl Howlett, "Nuclear Nonproliferation: The Way Forward," *Survival*, November/December 1991, 497.
2. A "negative objective" is one which acts to restrain or limit the application of military force, and contrasts with "positive objectives" which are attainable through force. During the cold war, the primary negative objective was the prospect of a brush-fire conflict erupting into a nuclear conflagration between the superpowers. Whenever negative objectives are understood to outweigh the positive, action is constrained. With the diminution of cold war hostilities, the "positive" aspects of preventing nuclear proliferation may outweigh the "negative" constraints of military action in enforcing nonproliferation. See Mark Clodfelter, *The Limits of Airpower*, Free Press, 1989, xi and 4 for a discussion of positive and negative objectives as related to the application of military power.
3. Gary L. Guertner, "Deterrence and Conventional Military Forces," *The Washington Quarterly*, Winter 1993, 143.
4. Donald G. Boudreau, "The Bombing of the Osirak Reactor: One Decade Later," *Strategic Analysis*, June 1991, 287.
5. *Ibid.*, 292.
6. *Ibid.*
7. House, Hearings before the Subcommittee on International Security and Scientific Affairs, Committee on Foreign Affairs, 17 June 1981, 1.
8. *Ibid.*
9. Boudreau, 289.
10. House, Hearings before the Subcommittee on International Security and Scientific Affairs, 34.
11. Boudreau, 288.
12. *Ibid.*, 289.
13. David Kay, "Iraqi Arms: not ready for inspection," *Army & Defence Quarterly Journal*, October 1992, 428.
14. House, Hearings before the Subcommittee on International Security and Scientific Affairs, 17.
15. *Ibid.*, 36.
16. McGeorge Bundy, "Nuclear Weapons and the Gulf," *Foreign Affairs*, Fall 1991, 89.
17. Jeffrey Record, "The Air War Missed Its Biggest Target," *Baltimore Sun*, 21 November 1991, 14.
18. Richard P. Hallion, *Storm Over Iraq: Air Power and the Gulf War* (Washington, D. C.: Smithsonian Institution Press), 1992, 174.
19. Hans Blix, "Verification of Nuclear Nonproliferation: The Lesson of Iraq," *The Washington Quarterly*, Autumn 1992, 58.
20. Record, 14, 17.
21. "Iraqi Letter Accepting Cease-Fire Terms," *Middle East Reporter*, 13 April 1991, 18.
22. David Albright and Mark Hibbs, "Iraq's Bomb: Blueprints and Artifacts," *Bulletin of the Atomic Scientists*, January–February 1992, 32.

23. "Unraveling the puzzle of Iraq's nuclear programme," *Jane's Defence Weekly*, 5 October 1991, 602.
24. Leonard S. Spector, "Nuclear Proliferation in the Middle East," *Orbis*, Spring 1992, 186.
25. Blix, 70.
26. Ibid.
27. "Iraq's Bomb—an Update," *New York Times*, 26 April 1993, A15.
28. "Bombs for All?" *The Economist*, 14–20 March 1992, 15.
29. Robert Art, "The Role of Military Power in International Relations," in *National Security Affairs*, B. Thomas Trout and James Harf, eds., 1982, 27.
30. Glenn H. Snyder, *Deterrence and Defense: Toward a Theory of National Security*, 1961, 3.
31. Bernard Brodie, *Strategy in the Missile Age*, 1959, 272.
32. Snyder, 12.
33. Thomas C. Schelling, *Arms and Influence* (New Haven: Yale University Press), 1966, 71.
34. Richard H. Shultz Jr., "Compellence and the Role of Airpower as a Political Instrument," *Comparative Strategy*, vol. 11, 1992, 20.
35. Edward C. Luck, "Making Peace," *Foreign Policy*, Winter 1992–93, 144.
36. Schelling, 71–72.
37. Snyder, 9.
38. Alexander L. George, *Limits of Coercive Diplomacy*, 1971, 23.
39. Mark J. Berkowitz, "The Role of Aerospace Power in Combatting Weapons Proliferation," *Strategic Review*, Winter 1992, 69.
40. George H. Quester, *Nuclear Pakistan and Nuclear India* (Strategic Studies Institute, US Army War College), 25 November 1992, 14.
41. Marc Trachtenberg, "The Influence of Nuclear Weapons in the Cuban Missile Crisis," *International Security*, Summer 1985, 163.
42. Schelling, 31.
43. Snyder, 3.
44. *Adelphi Papers* 252, Summer 1990, 33.
45. Steve Fetter, "Ballistic Missiles and Weapons of Mass Destruction," *International Security*, Summer 1991, 6.
46. Berkowitz, 67.
47. Ibid.
48. Ibid.
49. Fetter, 14.

## Chapter 5

### Conclusion

#### *Questions, Implications, Recommendations*

At this point, it is fair to ask three questions, all related to the potential contribution of the military instrument of national power to slowing the spread of nuclear weapons:

1. What is the relationship between force and other tools of foreign policy and what are the conditions where the use of force is appropriate?
2. What are the positive and negative objectives of using force to counter the proliferation of nuclear weapons and does any particular form of military power best address these objectives?
3. How should a counterproliferation force be organized?

#### **Force and Nonproliferation—Three Questions**

1. *What is the relationship between force and other tools of foreign policy and what are the conditions where the use of force is appropriate?*

Military force offers much to the nonproliferation regime, representing much untapped potential. However, force is neither all of the answer part of the time, nor part of the answer all of the time. In fact, the military instrument must remain the "ultimate sanction."<sup>1</sup> In contrast to Israel's strike at Osiraq, for example, we must exhaust all other avenues before resorting to force. The addition of military "demand-side disincentives" to the nonproliferation regime is not meant to challenge the primacy of diplomacy, the importance of export controls, or the effect of economic sanctions. In our zeal to discourage nuclear proliferation, we must not forget that the use of the military instrument of national power must, always, be a last resort.

Where appropriate, however, the application of military force can be decisive. At times it can be the difference between victory and defeat, between stopping the illegal development of a nuclear weapons capability and seeing yet another hostile regime gain the bomb. The rub is to define when force is the tool of choice. For our purposes, four situations suggest themselves where

the application of military power can be expected to contribute to the goals of limiting the spread or preventing the use of nuclear weapons. The first instance is also the easiest; in conjunction with war. As illustrated in Desert Storm, whenever an adversary in conflict is pursuing weapons of mass destruction, the elimination of such capabilities is a legitimate strategic objective. Another related lesson of the Gulf War is that the importance of fulfilling this objective can be overriding, and may extend beyond the end of active hostilities if necessary. While the ratio of war to postwar destruction of nuclear weapons-related facilities is largely a function of prewar intelligence, it should be understood that the threat or use of force will continue, and thus ensure that the costs of a weapon remains prohibitive. The second potential use of force has a different orientation, but a similar ultimate objective—the prevention of nuclear use. The international community could threaten reprisal actions in response to an offensive use of nuclear weapons between adversaries. For example, in the 1990 Indo-Pakistani dispute over Kashmir, Pakistan was reportedly close to using nuclear weapons against India. Apparently, Pakistani leaders almost concluded that the expected gains of using nuclear weapons would exceed the probable costs. If, however, the United Nations declared that the use of nuclear weapons for purposes other than self-defense would be met by a multilateral conventional response, then the cost-benefit calculus might shift in the direction of nonuse. Thirdly, this type of force application could also be used in a modification of one of the classic cold war concepts—extended deterrence. It has been widely theorized that the withdrawal of the nuclear security guarantees formerly extended by the superpowers is contributing to the pressure felt by some to develop their own nuclear arsenals. To thwart this trend, the international community may want to let it be known that nuclear use or attempts at nuclear coercion against nonnuclear states would be to invite conventional retaliation. For example, Japan, Taiwan, and, especially, South Korea are all understandably concerned over North Korea's nuclear weapons program and all have considered developing their own nuclear capability should North Korea succeed. As an alternative to nuclear weapons in every pot, it would be preferable for the United Nations to reassure nonnuclear states that it had the means and the will to inflict a devastating conventional reply to nuclear aggression. John Deutch supported this concept in a recent issue of *Foreign Affairs* where he wrote: "the United States, preferably in a multilateral context should state that any use of a nuclear weapon would be considered a casus belli and that violation of the NPT would trigger specific sanctions, including the possibility of multilateral, and, in exceptional cases, unilateral military action."<sup>2</sup>

The final situation where force might be the best solution relates more directly to our primary aim of limiting the spread of nuclear arms. It is also an area that is both less defined and more likely to occur than the other three. At issue are situations where the nonproliferation regime and the international community must respond to evidence of ambiguous proliferation. In this capacity there are several ways in which to use force,

ranging from providing intelligence information on clandestine nuclear programs, to flying escort for IAEA short-notice challenge inspections, to destroying nuclear weapons-related facilities. As mentioned at the outset, these options must not be viewed in isolation and should be placed in the context of a ladder of escalating responses meant to stop a rogue state from violating international agreements and global norms in its drive to acquire nuclear weapons. If Joseph Nye's central proposition is true—that "the basic norm in the nonproliferation regime reverses the a priori assumption that in a world of sovereign states, any measure of self-defense is legitimate"<sup>3</sup>—then the direction is clear. If the regime is to mean anything, and if the Security Council declaration of January 1992 is to be more than mere words, then the development of any new nuclear weapons capability is illegitimate—and the international community must be prepared to enforce this norm by whatever means necessary.

*2. What are the positive and negative objectives of using force to counter the proliferation of nuclear weapons and does any particular form of military power best address these objectives?*

Given that there are times when the application of force may be the best hope of reversing nuclear proliferation, what are our objectives? Can we be any more precise than simply wanting "to stop proliferation?" In fact, the positive objectives of nonproliferation are relatively easy to identify. Broadly speaking, they include to stop or at least to greatly slow the spread of nuclear weapons, and to discourage nuclear use.<sup>4</sup> At a slightly lower supporting level, the nonproliferation regime as a whole seeks to control exports, buy time, lessen incentives, strengthen disincentives, create legal obligations, and foster common global norms.<sup>5</sup> Although only one of many tools, force is nonetheless valuable in realizing four of these more specific objectives. In urgent situations, force can be the most important means of all in buying time. Through its function of extending deterrence, it also assists in lessening the incentives for developing nuclear weapons. Third, force is also the ultimate means of strengthening disincentives to pursue the bomb. Finally, it is a potentially powerful way of reinforcing existing norms against proliferation and nuclear use. In short, force offers much to nonproliferation, in both its latent and actual forms. To date, however, its contribution to accomplishing the goals of nonproliferation has been minimal, except for the coincidental contributions of Desert Storm and its aftermath in Iraq. In the near future, however, as the defenders of the nuclear status quo become increasingly alarmed and more attentive, and as those few who seek to change existing arrangements come closer to their goal, confrontations involving force become ever more likely. Though unpleasant, such collisions may become necessary so that we might "prevent today what might not prove manageable tomorrow."<sup>6</sup>

While I am a proponent of a more "forceful" approach to nonproliferation policy, this is not to suggest that an increased reliance on force would be a panacea. Indeed, there are a number of negative objectives, or constraints, which must always be borne in mind. For example, it is by now axiomatic that the success of a military operation is directly proportional to the degree of

political commitment behind it. In this regard there is cause here for concern, for although nonproliferation is being taken more seriously, still "one can question whether the political will exists to thwart a state determined to acquire nuclear weapons, especially if military action is required."<sup>7</sup> The fragility of public support has become a recurring constraint that cannot be overlooked when contemplating strong action against proliferation, even if we are reinforcing international norms to which the overwhelming majority of nations subscribe. This support is probably weakest when it appears we are acting in sole support of American interests. While we should always preserve the freedom to go it alone in extraordinary situations, we must still recognize the twin dangers of unilateral action—"resentment and resistance."<sup>8</sup> Not surprisingly, these objections tend to dissipate when the military action is multilateral and reflects collective sentiment—two factors conspicuous by their absence at Osiraq. Similarly, yet another modern consideration looms large—it is becoming increasingly apparent that military operations are no longer solely measured by their success. The projected human cost—of the enemy as well as of ourselves—is now a crucial planning consideration, and the loss of life becomes a major criterion of operational success. Thus, we must select ways of performing the mission that minimize all casualties—combatant and civilian.

On top of the general strategic constraints of maintaining public support, reflecting international interests, and minimizing casualties, there are operational constraints to consider as well. First, as post-Desert Storm reviews have shown, intelligence deficiencies are generally not known until after the fact. Unfortunately, the potential for a repeat performance exists, for there are indications that Iraqi methods of dispersion, duplication and concealment are being copied in other countries, such as Iran. This additional stress on intelligence must be factored into current planning, but as we learn from the Iraqi example and further transition to a regional intelligence orientation, the success of such clandestine efforts should decline. In fact, if the North Korean discomfort over the extent of our knowledge of their nuclear weapons activities is any indication, we may already be on the way toward exposing previously secret nuclear programs. For counterproliferation operations occurring short of war it is imperative that planners know the numbers and locations of targets as completely as possible, for there will be considerable pressure to get it right the first time. Opportunities for a restrike are dramatically fewer than would exist in time of war. In a similar vein, confirmation of destruction and the entire issue of damage assessment must be viewed in a different light when evaluating counterproliferation operations. In short, the reconnaissance and intelligence demands of counter-proliferation—pre- and poststrike—are considerable and need attention.

Additionally, and unique to the counterproliferation mission, we must exercise great care when reactor complexes are part of the target set. Optimally, the reactor will not be operational, as was the case at Osiraq in 1981. Also, we need not destroy the reactor itself, as essential supporting infrastructure is also a lucrative target. As tactical details are not within our

scope here, we will conclude by stating the obvious—that if ever there was a target that requires the scalpel rather than the hammer, this is it. Undoubtedly there is risk here, as it is an inherent part of any military undertaking. Risk, however, should be neither downplayed nor exaggerated. Above all, it must be viewed in context. From this perspective, the chances of success and the risk involved in counterproliferation strikes must be viewed against two other proliferation-related scenarios. First, against the situation faced after systems are operational. The difficulties here are apparent when remembering the “Great Scud Hunt” of Desert Storm.<sup>9</sup> Even more ominous, the risks of “early and collective intervention”<sup>10</sup> must be evaluated in the light of the opportunities for mayhem which would follow from a nuclear-armed Hussein.

While on the subject of risk, we must now ask if there is any form of military power that has the greatest chances for counterproliferation success at the lowest possible cost and risk, that is more likely to realize the positive objectives of nonproliferation while avoiding the negative? In a word, yes. Air power. When a permanent physical presence is required, and where pieces of geography are at issue, ground power is ideal. When the situation calls for an approximate balance between mobility and presence, as in power projection, naval power is well suited. But for jobs requiring speed, surprise, range, precision, and minimum casualty exposure, air power is unmatched.<sup>11</sup> When matching the machine with the mission, counterproliferation’s partner must be air power. To succeed in counterproliferation, all of air power’s attributes are required. Against a foe employing deception and concealment, speed and surprise are essential. In an era when forward basing is less forward and has fewer bases, air power’s long legs become increasingly important.<sup>12</sup> Further, in perhaps no other mission is the requirement for precision and accuracy more important, and, here again, air power is the weapon of choice. As Desert Storm dramatically underscored, there is simply no rival to strikes from the air when minimizing casualties and collateral damage are important.<sup>13</sup> Finally, air power is preferable in a Security Council Resolution 687 style enforcement scenario as well. As a result of the ongoing Iraqi experience, Hans Blix concludes that the two primary keys to successful coercive arms inspections are ensuring the right of access and providing a knowledge of where to inspect.<sup>14</sup> Air power’s offensive and intelligence capabilities are thoroughly indispensable in both regards. It is no exaggeration to claim that intrusive United Nations inspections are not possible without the daily presence of air power.

While the exact composition of a counterproliferation force is always context dependent, general tendencies can be traced. For example, much of this mission is quite overt, requiring the clear communication of a counterproliferation capability and resolve. The extended deterrent aspect of counterproliferation is an illustration of this show-of-force requirement. For this purpose, an instrument such as the USAF’s 366th Composite Wing, located at Mountain Home AFB, Idaho would be ideal. With its combined force of F-15 and F-16 fighter aircraft, B-52 bombers, and integral airlift and



tanker support, the 366th is capable of rapid response anywhere in the world with minimal warning. The assignment of counterproliferation to the responsibilities of the 366th would be a visible and forceful indication that those who seek to develop nuclear weapons no longer have a free ride, and that those who abide by their commitments are not without protection.

On the other hand, counterproliferation also requires the ability to strike with secrecy and surprise. Here the preferred instruments include such stealthy platforms as the F-117 fighter and B-2 bomber, as well as cruise missiles and special operations forces. Such a force would possess the requisite ability to quickly destroy nuclear facilities without warning, while minimizing casualties and collateral damage. In other words, a force comprised largely of air power assets offers the best hope of maximizing the positive objectives of counterproliferation while minimizing the negative.

### *3. How should a counterproliferation force be organized?*

The precise organization of a force to combat nuclear proliferation is not as important as the fact that there be one. Further, we must also recognize that the size, shape and composition of such a force are all largely driven by factors only peripherally related to proliferation, such as budgets and bureaucracies. That being said, however, it is still wise to discuss some organizational matters, if only in a general sense, because some forms of organization are closer to fitting the nonproliferation bill than others. Although drawing a detailed organizational chart for counterproliferation may be beyond our present abilities, we can identify two imperatives which must be met. First, it is essential that the organizational structure of any counterproliferation force take into account the multilateral nature of its mission and, secondly, it must have the ability to respond and deploy virtually anywhere with little warning. Our task is to identify the best way to organize the counterproliferation force that is within these two broad parameters as well as effective in realizing the objectives of nonproliferation. To guide us in this process, we will answer two fundamental questions. First, what is the organizational basis for a collective approach to counterproliferation, and secondly, who should be in control of a counterproliferation force?

Thanks largely to the end of the cold war in 1989 and success in reversing Iraq's attempted annexation of Kuwait a year later, we are now in an activist period by the United Nations. The UN is now operating much as it was envisioned at its creation, and enjoys a widespread consensus that the body is becoming increasingly important and is "now energized by multilateral mandates and an effective Security Council."<sup>15</sup> This resurgence of the UN also has implications for how we approach nonproliferation as well. For perhaps the first time since the spread of nuclear weapons became an issue in 1949, we can expect that countries will "pool their resources and influence to stem the spread of nuclear weapons" to an unprecedented degree.<sup>16</sup> Recognizing this trend, we are thus relatively safe to assume that the most likely counterproliferation action will be multilateral and, specifically, under the umbrella of the United Nations. Accordingly, a brief examination of the UN Charter should give us an organizational basis for establishing a force to

counter the proliferation of nuclear weapons. The chapters of the charter that pertain most to military force are Chapters I, VI, and VII. Chapter I proclaims that one of the purposes of the body is "To maintain international peace and security, and to that end: to take effective collective measures for the prevention and removal of threats to the peace, and for the suppression of acts of aggression or other breaches of the peace."<sup>17</sup> These collective measures for prevention, removal, and suppression are detailed in the sixth and seventh chapters of the Charter. Chapter VI, the "peacekeeping" chapter, was designed by the founding fathers of the UN to provide for the pacific settlement of disputes, followed by a Chapter VII enforcement action if peacekeeping measures proved insufficient.<sup>18</sup> As described earlier, the latitude given under Chapter VII is quite broad, authorizing collective enforcement operations by air, sea, or land in support of international peace and security. The strong and oft-quoted Security Council statement of 31 January 1992 was issued under Chapter VII authority, and any counterproliferation force organized to fulfill the terms of the statement would inherit the authority and legitimacy of the United Nations.

Also, as previously discussed, the Nonproliferation Treaty is administered by a United Nations agency, the IAEA. The NPT is one of the most widely adopted of all treaties, currently embraced by some 150 countries. All signatories to the treaty have pledged not to develop or otherwise seek to obtain nuclear weapons. Thus, whenever an NPT state is discovered to have defaulted on its pledge, it is subject to UN scrutiny, including the Chapter VII enforcement actions just described. This much is well understood, but it is also accompanied by the perception that not belonging to the NPT somehow excuses one from the obligation not to develop nuclear weapons. Conventional wisdom holds that a state outside the treaty is immune from prosecution. Such a view has much current relevance, as it suggests that North Korea's recent withdrawal from the treaty effectively places it in a form of proliferation sanctuary. Several commentators, however, have recently offered convincing arguments to the contrary. Rolf Ekeus, for example, insists that the 31 January Security Council resolution is binding "on all UN members, because it was adopted under Chapter VII of the UN Charter" and "the international community must be able to take action even against states that have refused to join the nonproliferation regime if such a state creates a situation that threatens to result in proliferation."<sup>19</sup> Likewise, John Mackinlay and Jarat Chopra maintain that "collectively constituted forces have the authority and legitimacy to operate in the absence of host state consent" and point out that in recognizing Article 25 all United Nations members "agree to accept and carry out the decisions of the Security Council."<sup>20</sup> Such interpretations remind us of the basic but profound fact that nonproliferation is at heart a Chapter VII issue, meant to promote international peace and security. Counterproliferation is therefore based on more than the NPT, but instead has an organizational basis firmly grounded in a United Nations Charter that applies to all. Thus, allowing an NPT withdrawal to foreclose an international response would be to permit form to triumph over content in a manner contrary to the very aim of nonproliferation.

Our second issue is the command and control of military forces in support of multilateral ventures. This topic has received much recent treatment, primarily as part of the Desert Storm postmortem. Though several variations exist, there are essentially three basic models. The first is what is best described as the creation of a multilateral military operation in response to a particular crisis or contingency, and is closest to the traditional method most used throughout history where the great powers have orchestrated international security.<sup>21</sup> This remains the typical way of organizing today, where upon Security Council authorization a military structure is created to integrate coalition members as the situation requires. Such an arrangement is obviously impermanent and tends to favor the stronger members of the coalition, but it is also tailored to its unique environment and, as both Desert Storm and Resolution 687 have shown, is capable of conducting modern combat and inspection operations extremely well.

An alternative means of command and control is more as envisioned by the framers of the UN Charter. In this model, UN members would "make forces available to the Security Council" as called for in Article 43.<sup>22</sup> As generally interpreted, this would involve earmarking standby or call-up forces to fall under UN command when required by the Security Council. This approach also includes the reinvigoration of the Military Staff Committee as a body to "advise and assist" the Security Council on military matters.<sup>23</sup> Although it is true that the members of the Security Council need not unduly fear incurring unwelcome military commitments due to their veto power, there is nonetheless a reticence by most of the major countries to adopt this approach. This reluctance to cede autonomy is even more pronounced over the third and most radical suggestion of how best to organize forces in support of an activist United Nations. Proponents of this view urge the creation of a permanent, standing UN military capability.<sup>24</sup> Such a force would fall under the command of the Security Council and requires that "the UN's most powerful members forgo their inclination for unilateral foreign policy options and be prepared to subordinate their effective military assets to a multinational command."<sup>25</sup> The strength and unity displayed by the Security Council in Desert Storm is seen as justification of the belief that the Security Council is up to the job of possessing its own military forces, as it displayed "the capacity to initiate collective measures essential for the maintenance of peace in a new world order."<sup>26</sup>

It is certainly true that the general view of the United Nations is considerably more favorable than it was only a few years ago, and it may well be true that if the Security Council enjoys its current "remarkable commonality of interests"<sup>27</sup> it might be entirely capable of organizing and employing its own army. However, as a practical matter, this possibility is unlikely in the foreseeable future, as there is little evidence that the major states are yet willing to support UN forces or command.<sup>28</sup> Thus, we are faced with the situation where a coalition military force must prepare to be committed to accomplish a United Nations mission, pursuant to a Security Council resolution, and yet be without the benefit of much United Nations

support. In this regard, Chairman Colin Powell's recent proposal that the United States investigate the possibility of forming a new joint command that specifically includes responsibility for such UN missions as Chapter VI peacekeeping and other operations short of war deserves our attention, for it might offer a home to counterproliferation.<sup>29</sup> If the charter of this command were broadened slightly to include Chapter VII operations, such as counterproliferation, it would become the nation's primary command for supporting the United Nations, and would allow both the development of doctrine and the refinement of training. Even this modest proposal, however, is probably at best a midterm possibility. In defining counterproliferation command and control in the immediate future, then, we can do no better than to return to the beginning. The most likely arrangement will probably resemble the standard contingency operation, with perhaps the addition of such new units as the 366th Composite Wing described earlier. While this is hardly an optimum arrangement, it is at least one we know well.

In summary, as the preceding discussion of command and control indicates, we are now in the early stages of formulating a serious response to the burgeoning threat of nuclear proliferation. While this is a most welcome development, the pressures on the nonproliferation regime remain enormous, and it is by no means certain that the current nonproliferation momentum will be sustained. Further, as the international community grapples with the political and organizational aspects of counterproliferation, the clock is ticking. Recognizing that time is not on nonproliferation's side, much of the recent commentary urges that "we adopt rules of engagement far more aggressive than those prevailing today."<sup>30</sup> This reflects a new attitude that there is simply no reason for the nonproliferation regime to tolerate ambiguity any longer. Accordingly, DOD must anticipate being called upon to enforce the right of the international community to verify that nonproliferation agreements and norms are being adhered to. I am sympathetic to this view, for I believe the continued proliferation of nuclear weapons can only be halted by convincing those who pursue them that their nuclear ambitions will be denied, and this denial will be communicated in the language of force if that is what it takes. Further, the successful communication of this intent is directly related to the clarity of the message. To this end, I propose that we institutionalize force into the nonproliferation regime, ideally within the framework of the United Nations. This approach is not meant to be a call to arms, but it is an expression of the view that if the United Nations really does intend to deal nuclear proliferation a mortal blow, it will more than likely require at some point its own line in the sand. It is essential that the threat or use of force be an integral part of translating words and declarations into plans and action. To pretend otherwise is to invite the continuation of an ad hoc form of policy-making that deters poorly, compels even worse, and defends not at all. We can, and must, do better.

## Notes

1. John Simpson and Darryl Howlett, "Nuclear Nonproliferation: The Way Forward," *Survival*, November–December 1991, 498.
2. John M. Deutch, "The Nuclear Threat," *Foreign Affairs*, Fall 1992, 133.
3. Joseph S. Nye, Jr., "New Approaches to Nuclear Nonproliferation Policy," *Science*, 29 May 1992, 1,294.
4. Deutch, 134.
5. Lewis A. Dunn, "Containing Nuclear Proliferation," *Adelphi Papers* 263, Winter 1991, 28.
6. Paul A. Leventhal, "Plugging the Leaks in Nuclear Export Controls: Why Bother?" *Orbis*, Spring 1992, 169.
7. Avner Cohen and Marvin Miller, "How to Think About—and Implement—Nuclear Arms Control in the Middle East," *The Washington Quarterly*, Spring 1993, 103.
8. David A. Fulgham, "Advanced Arms Spread Defies Remote Detection," *Aviation Week & Space Technology*, 9 November 1992, 22.
9. Mark J. Berkowitz, "The Role of Aerospace Power in Combatting Weapons Proliferation," *Strategic Review*, Winter 1992, 70.
10. Edward C. Luck, "Making Peace," *Foreign Policy*, Winter 1992–1993, 140.
11. Richard H. Shultz, Jr., "Compellence and the Role of Airpower as a Political Instrument," *Comparative Strategy*, vol. 11, 1992, 22–23.
12. Berkowitz, 70.
13. For a discussion of air power's attributes in the context of the post-cold war world, see Dennis M. Drew, "The Airpower Imperative: Hard Truths for an Uncertain World," *Strategic Review*, Spring 1991, 24–31.
14. Hans Blix, "Verification of Nuclear Nonproliferation: The Lesson of Iraq," *The Washington Quarterly*, Autumn 1992, 59.
15. Patricia Bliss McFate, "Where Do We Go from Here: Verifying Future Arms Control Agreements," *The Washington Quarterly*, Autumn 1992, 75.
16. W. Y. Smith, "Principles of U.S. Grand Strategy: Past and Future," *The Washington Quarterly*, Spring 1991, 75.
17. John Mackinlay and Jarat Chopra, "Second Generation Multinational Operations," *The Washington Quarterly*, Summer 1992, 127.
18. *Ibid.*, 114.
19. Rolf Ekeus, "The Iraqi Experience and the Future of Nuclear Nonproliferation," *The Washington Quarterly*, Autumn 1992, 68, 72.
20. Mackinlay and Chopra, 128.
21. Joseph S. Nye, Jr., "The Logic of Inequality," *Foreign Policy*, Summer 1985, 131.
22. Luck, 152.
23. *Ibid.*, 153.
24. Ekeus, 72.
25. Mackinlay and Chopra, 113.
26. Bruce Russett and James S. Sutterlin, "The UN in a New World Order," *Foreign Affairs*, Spring 1991, 82.
27. *Ibid.*, 75.
28. Mackinlay and Chopra, 129.
29. Colin L. Powell, Report on the Roles, Missions, and Functions of the Armed Forces of the United States, February 1993, III-2-III-5.
30. Leonard S. Spector, "Proliferation: The Silent Spread," *Foreign Policy*, Spring 1985, 78.

## ***Bibliography***

### **Principal Sources:**

- Albright, David, and Mark Hibbs. "Iraq's Bomb: Blueprints and Artifacts." *Bulletin of the Atomic Scientists*, January–February 1992.
- Art, Robert. "The Role of Military Power in International Relations." *National Security Affairs*. B. Thomas Trout and James Harf, eds. New Brunswick, N.J.: Transaction Books, 1982.
- Aspin, Les. "The Clinton Defense Plan: New Strategy and New Forces for a New Era." *Statement Before the House Armed Services Committee*, 30 March 1993.
- Atkeson, Edward B. "The Middle East: A Dynamic Military Net Assessment for the 1990s." *The Washington Quarterly*, Spring 1993.
- Barnaby, C. F. *Preventing the Spread of Nuclear Weapons*. New York: The Humanities Press, 1969.
- Berkowitz, Mark J. "The Role of Aerospace Power in Combatting Weapons Proliferation." *Strategic Review*, Winter 1992.
- Bermudez, Joseph S. "North Korea's Nuclear Programme." *Jane's Intelligence Review*, September 1991.
- Blix, Hans. "Verification of Nuclear Nonproliferation: The Lesson of Iraq." *The Washington Quarterly*, Autumn 1992.
- Boudreau, Donald G. "The Bombing of the Osirak Reactor: One Decade Later." *Strategic Analysis*, June 1991.
- Brodie, Bernard. *Strategy in the Missile Age*. Princeton, N.J.: Princeton University Press, 1959.
- Bundy, McGeorge. "Nuclear Weapons and the Gulf." *Foreign Affairs*, Fall 1991.
- Bush, George H.W. *National Security Strategy of the United States*. Washington, D.C.: The White House, August 1991.
- Chellaney, Brahma. "South Asia's Passage to Nuclear Power." *International Security*, Summer 1991.
- Clodfelter, Mark. *The Limits of Airpower*. New York: Free Press, 1989.
- Cohen, Avner, and Marvin Miller. "How to Think About—and Implement—Nuclear Arms Control in the Middle East." *The Washington Quarterly*, Spring 1993.
- Dannreuther, Roland. "The Gulf Conflict: A Political and Strategic Analysis." *Adelphi Papers* 264, Winter 1991/92.
- Deutch, John M. "The New Nuclear Threat." *Foreign Affairs*, Fall 1992.
- Drew, Dennis M. "The Airpower Imperative: Hard Truths for an Uncertain World." *Strategic Review*, Spring 1991.
- Dunn, Lewis A. "Containing Nuclear Proliferation." *Adelphi Papers* 263, Winter 1991.
- . *Controlling the Bomb: Nuclear Proliferation in the 1980s*. New Haven: Yale University Press, 1982.

- Ekeus, Rolf. "The Iraqi Experience and the Future of Nuclear Nonproliferation." *The Washington Quarterly*, Autumn 1992.
- Epstein, William. *The Last Chance: Nuclear Proliferation and Arms Control*. New York: Free Press, 1976.
- Fetter, Steve. "Ballistic Missiles and Weapons of Mass Destruction." *International Security*, Summer 1991.
- Fischer, George. *The Nonproliferation of Nuclear Weapons*. New York: St Martin's Press, 1971.
- George, Alexander L. *Limits of Coercive Diplomacy*. Boston: Little, Brown, and Co., 1971.
- Guertner, Gary L. "Deterrence and Conventional Military Forces." *The Washington Quarterly*, Winter 1993.
- Hallion, Richard P. *Storm Over Iraq: Air Power and the Gulf War*. Washington, D.C.: Smithsonian Institution Press, 1992.
- "Israeli Attack on Iraqi Facilities." Hearings Before the Subcommittee on International Security and Scientific Affairs, House Committee on Foreign Affairs, 17 June 1981.
- Kay, David. "Iraqi Arms: not ready for inspection." *Army and Defence Quarterly Journal*, October 1992.
- Leventhal, Paul A. "Plugging the Leaks in Nuclear Export Controls: Why Bother?" *Orbis*, Spring 1992.
- Luck, Edward C. "Making Peace." *Foreign Policy*, Winter 1992-1993.
- Mack, Andrew. "North Korea and the Bomb." *Foreign Policy*, Summer 1991.
- Mackinlay, John, and Jarat Chopra. "Second Generation Multinational Operations." *The Washington Quarterly*, Summer 1992.
- Mahnken, Thomas G. "The Arrow and the Shield: U.S. Responses to Ballistic Missile Proliferation." *The Washington Quarterly*, Winter 1991.
- Marwah, Onkar, and Ann Schulz, eds. *Nuclear Proliferation and the Near-Nuclear Countries*. Cambridge, Mass.: Ballinger Publishing Co., 1975.
- McCain, John. "Controlling Arms Sales to the Third World." *The Washington Quarterly*, Spring 1991.
- McFate, Patricia Bliss. "Where Do We Go from Here: Verifying Future Arms Control Agreements." *The Washington Quarterly*, Autumn 1992.
- Navias, Martin. "Ballistic Missile Proliferation in the Third World." *Adelphi Papers* 252, Summer 1990.
- Nye, Joseph S., Jr. "New Approaches to Nuclear Proliferation Policy." *Science*, 29 May 1992.
- \_\_\_\_\_. "The Logic of Inequality." *Foreign Policy*, Summer 1985.
- Pipes, Daniel, and Patrick Clawson. "Ambitious Iran, Troubled Neighbors." *Affairs: America and the Foreign World* 1992/3.
- Potter, William C. "The New Nuclear Suppliers." *Orbis*, Spring 1992.
- Powell, Colin L. Report on the Roles, Missions, and Functions of the Armed Forces of the United States. Washington, D.C.: Pentagon, February 1993.
- \_\_\_\_\_. *The National Military Strategy 1992*. Washington, D.C.: Government Printing Office, January 1992.

- Quester, George H. *Nuclear Pakistan and Nuclear India: Stable Deterrent or Proliferation Challenge?* Strategic Studies Institute. Carlisle Barracks, Pa.: US Army War College, 25 November 1992.
- \_\_\_\_\_. "Some Pakistani Problems and a Nuclear Non-Solution." *The Journal of Strategic Studies*, December 1985.
- Reiss, Mitchell. "The United States and Pakistan's Nuclear Programme." *Royal United Services Journal*, Summer 1991.
- Rioux, Jean-Francois. "Supply-Side Controls On Nuclear Proliferation." *Orbis*, Spring 1992.
- Russett, Bruce, and James S. Sutterlin. "The UN in a New World." *Foreign Affairs*, Spring 1991, 82.
- Schelling, Thomas C. *Arms and Influence*. New Haven: Yale University Press, 1966.
- Shultz, Richard H., Jr. "Compellence and the Role of Airpower as a Political Instrument." *Comparative Strategy*. Vol. 11, 1992.
- Simpson, John, and Darryl Howlett. "Nuclear Nonproliferation: The Way Forward." *Survival*, November/December 1991.
- Smith, W.Y. "Principles of U.S. Grand Strategy: Past and Future." *The Washington Quarterly*, Spring 1991.
- Snyder, Jed C. "The Non-Proliferation Regime: Managing the Impending Crisis." *The Journal of Strategic Studies*, December 1985.
- Snyder, Glenn H. *Deterrence and Defense: Toward a Theory of National Security*. Princeton, N.J.: Princeton University Press, 1961.
- Spector, Leonard S. "Proliferation: The Silent Spread." *Foreign Policy*, Spring 1985.
- \_\_\_\_\_. "Repentant Nuclear Proliferants." *Foreign Policy*, Fall 1992.
- \_\_\_\_\_. "Nuclear Proliferation in the Middle East." *Orbis*, Spring 1992.
- Subrahmanyam, K. "Export Controls and the North-South Controversy." *The Washington Quarterly*, Spring 1993.
- Trachtenberg, Marc. "The Influence of Nuclear Weapons in the Cuban Missile Crisis." *International Security*, Summer 1985.
- Wallace, Andrew A., and Bradley Thayer. "Managing Nuclear Proliferation After the Cold War." Unpublished monograph.
- Waltz, Kenneth N. "The Spread of Nuclear Weapons: More May Be Better." *Adelphi Papers* 171, Autumn 1981.
- Yager, Joseph A., ed. *Nonproliferation and US Foreign Policy*. Washington, D.C.: Brookings Institution, 1980.

#### **Other Sources:**

- "Are Nukes on the Loose?" *U.S. News & World Report*. 19 April 1993.
- "Bombs for All?" *The Economist*. 14-20 March 1992.
- Fulghum, David A. "Advanced Arms Spread Defies Remote Detection." *Aviation Week & Space Technology*, 9 November 1992.
- International Institute for Strategic Studies, *Strategic Survey 1991-1992*. London: Brassey's, 1992.



"Iraq's Bomb—an Update," *New York Times*. 26 April 1993, A15.  
 "Iraqi Letter Accepting Cease-Fire Terms." *Middle East Reporter*. 13 April 1991.  
 Katz, Lee Michael. "Iraqi Weapons." *USA Today*. 25 March 1993, 7.  
 Niekerk, Philip van. "South Africa Had 6 A-Bombs." *The Washington Post*. 25 March 1993.  
 Porteous, Holly. "Unravelling the puzzle of Iraq's nuclear programme." *Jane's Defence Weekly*, 5 October 1991.  
 Record, Jeffrey. "The Air War Missed Its Biggest Target." *Baltimore Sun*, 21 November 1991.  
 Rengger, Nicholas, ed. *Treaties and Alliances of the World*. London: Longman Group, 1990.  
 Sanger, David E. "West Knew of North Korea Nuclear Development." *The New York Times*, 13 March 1993.  
 Starr, Barbara. "Iraq was close to nuclear device." *Jane's Defense Weekly*. 23 November 1991.  
 "Taming Nuclear Tigers." *Jane's Defense Weekly*. 7 December 1991.  
 "The Clinton Doctrines." *U.S. News & World Report*. 11 January 1993.  
 "Treaty on the Nonproliferation of Nuclear Weapons." *The Arms Control Reporter*, January 1991.  
 "U.S. Implementation of the Soviet Nuclear Threat Reduction Act of 1991." Statement for the record of Frank C. Conahan, assistant comptroller general, before the Senate Committee on Foreign Relations. United States General Accounting Office, 27 July 1992.  
*U.S. News & World Report*. 29 March 1993, 18.  
 \_\_\_\_\_. 5 April 1993, 14.